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THE NATIONAL ELEMENTARY Principal

VOLUME XXXVII, NUMBER 6 April, 1958

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THE NATIONAL ELEMENTARY

Principal

THIRTY-SEVENTH YEAR OF PUBLICATION VOLUME XXXVII NUMBER 6

CONTENTS

PAGE

SCIENCE FOR CHILDREN

An Index to the Future—*Gerald S. Craig* 6

Next Steps in Elementary Science—*Nelson F. Beeler* 8

Role of Science in Child Development—
Herman Schneider and Nina Schneider 11

Toward Leadership in Elementary Science—
Matthew J. Brennan 15

Framework for the Science Program—
Robert K. Wickware 18

An In-service Science Program—*Evan C. Richardson* ... 27

From Latin America 23

Rural Education in Guatemala—
Oscar de Leon Palacios 24

For Better Education in Panama—
Eliseo Cedeno Bermudez 25

Promotion Policies and Mental Health—*Lorene A. Stringer* 32

FEATURES

Cooperation for Competence 30

Summer Workshops 43

News—Local, State, National 37

New and Worth Reading 45

Our Advertisers 40

Coming Events 48

In this issue . . .

"We are told that European children develop intellectual independence, critical spirit, and sophistication by tackling a lot of the kind of work that American schools fail to provide. It is well to remember in this context that it was a group of grown-up German and Italian children who surrendered to the blandishments of Hitler and Mussolini. It is well to remember, too, that the sound science education of the Russian child does not apparently set him free to see thru . . . Communism. . . . Clearly, science alone is not enough. We must have sound science in a substrata of education for a democratic way of life."—*Norman Beeler in "Next Steps in Elementary Science." p. 8.*

". . . when one watches the work of the technicians and engineers who make up our scientific group (at Ellsworth Station, Antarctica), . . . it becomes very obvious that the work of these men and many others like them had its roots in a sound program of science in our schools. You can't have one without the other." *Matthew J. Brennan in "Towards Leadership in Elementary Science." p. 15.*

Robert Wickware's article, "Framework for the Science Program," p. 18, is based on a speech which he gave at the Department's Annual Meeting at Philadelphia in March.

Next issue . . .

"The Social Studies are Fundamental, Too" is the title of the lead article in the May issue which features the social studies.

The May issue will also carry material from the Annual Meeting —photographs, excerpts from speeches and from the resolutions.

THE NATIONAL ELEMENTARY PRINCIPAL is published in September (Yearbook Number), October, November (Membership Directory), December, February, April and May by the Department of Elementary School Principals, National Education Association of the United States.

Annual membership dues in the Department of Elementary School Principals, $5.00, of which $4.00 is for a year's subscription to THE NATIONAL ELEMENTARY PRINCIPAL. Single copies of the Yearbook Number, $3.50; October, December, February, April and May issues, 60 cents each. Directory Number, $2.00.

Second-class mail privileges authorized at Washington, D. C. and Richmond, Va.

Executive and Editorial Offices, 1201 Sixteenth Street, Northwest, Washington 6, D. C.

THE NATIONAL ELEMENTARY PRINCIPAL is a member of the Educational Press Association. The contents of this Bulletin are listed in the *Education Index*.

The schools today are the focal point of many pressures and issues. Perhaps more than ever before, they have come into the national spotlight as a center of major public attention.

May We Remember, the play presented during our Annual Meeting in Philadelphia, explored many of these educational issues. With an appealing combination of humor and seriousness, the play focuses sharply on current concerns—the implications for education of the launching of *sputnik*, the nature of Soviet education, the "back to the fundamentals" movement. It also points out those basic values which we must remember in seeking a solid approach to the educational demands of the times.

This play was written by Allan E. Sloane, a TV, radio and film writer, at the request of the Department of Elementary School Principals, NEA, especially for presentation at the Annual Meeting. The NEA's Committee on International Relations cooperated as co-sponsor and many staff members and pupils from the Philadelphia schools participated in the original production.

The Department is now making *May We Remember* available for general distribution in printed form. We do so in the belief that many of our members and other educators will want to give it top priority on their reading list—both because of its timeliness and because of its entertaining quality. We also believe that many communities will be interested in producing the play themselves—as a project for one or several schools or for a group such as the PTA.

It's Almost Easy!

Production of *May We Remember* should be well within the time and personnel limitations of anyone who is interested in it. Perhaps the author's foreword says it best:

"*May We Remember* should be presented by amateurs—people who love their work. The labor such love entails has therefore been held to a minimum by various devices.

"For instance, theater should be fun. Memorizing isn't. Your cast, accordingly, should read their lines from scripts, which they can carry inside books. And dressing-up is fun, but costumes are expensive, and make-up is messy. So, we have no costumes, except that when we pretend we're Russians, we put on babushkas and caps.

"Again, movable scenery is complicated and costly. We use plain platforms and risers instead. You can fashion these from whatever is handy: gymnasium or band equipment, planks on boxes . . . For cast—just people. Use only as many children as you need—no more. A 'class' doesn't have to be thirty children (even if, alas, it's often more), a dozen will do. Some of your cast will have to sing, but they don't have to be, shouldn't be, candidates for the Met."

This, then, will give you an idea of what is—or is not—involved in undertaking a presentation of *May We Remember* in your own community. And for an idea of the play's content, this excerpt of a scene from the first act.

NARRATOR

We heard a board of experts called a meeting to design a new kind of teacher. Modern, up-to-date, with all the knowledge the teacher needs built into its electronic circuits.

VERSE CHOIR

You don't mean—a machine!

NARRATOR

Why not? After all, machines meet payrolls and predict elections—don't they? They even have a name for it.

MAN

UNIVAPP. Universal All-Purpose Pedagogue—Model One.

NARRATOR

Well, after they built in the circuits for all the ologies and ographies—*and* the three R's, they discovered their mechanical teacher had to do a lot of other things like—

TEACHERS

(*Now one after another several teachers speak*)

Read and grade the homework papers,
Monitor study-period capers.
Note with almost a doctor's ear,
The child who's slow—because he can't hear.
Plan the assembly for Arbor Day,
Pour the tea at the PTA.
Answer the look in a parent's eyes
That says, "We never realized."
Find thirty-seven different ways
To say thank you for hankies on holidays.
Watch for the look, the faraway look
That tells of the magic when boy meets book.
Recognize it, nurture the seed
That blossoms in time to—"I can *read!*"
Get them to sing in at least *one* key
"O Beautiful," and " 'Tis of Thee."
The ones who're fast, the ones who're slow,
Help each at his own best pace to go.
Then quietly face that task so hard—
Sum up a child—with a mark on a card!
Keep them in after, for making a fuss—
Then drive them home, 'cause they missed the bus!
Teach them, know them, every one
Lose them forever when session's done.
Give them everything you know—
Then—let them go.
And what's your reward? The hope that you
May have kindled the spark and the courage in one
To nudge the world on—to millenium.

VERSE CHOIR

Thus it was very quickly seen
Teaching cannot be done by machine.

NARRATOR

Only by a human being. That's all we are.
And that's what it's our job—and our glory to do—
Turn out other human beings.
That's what education's for.
To show a little child somehow that—
Two and two add up not only to four,
But also—the first step to the stars.
That do-re-me can become a symphony
And Shakespeare grow from A-B-C.

To Order

Copies of *May We Remember* are $1.00 each and may be obtained by writing to the Department of Elementary School Principals, NEA, 1201 16th St., N.W., Washington 6, D. C.

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An Indexte

GERALD S. CRAIG

The American elementary school is a unique institution. It has been called at times "the great common school," in that it is the school for all the people. It was established by our forefathers as the one institution that would be common to everyone, regardless of race, religion, and economic status. This was the basic institution dedicated to the education of people for citizenship in a democracy. Therefore, any category such as science, entering into the curriculum of the elementary school, must be developed in the interests of all boys and girls.

Science in childhood education should be an area which is fundamental for children living in a democracy. It should be freed from the paraphernalia of specialized science. In all our thinking we must make certain that we are considering how science fits into a program of elementary education in a democracy and not how children fit into a program of science. Perhaps we should describe science as a part of the program of childhood education rather than thinking of science as a separate program.

The elementary school has in its enrolment not only the future scientists of our country, but the laymen as well (and everyone is a layman outside his own field of specialization). The task of science instruction is a much larger one than discovering children of exceptional ability in science and starting them on their way to becoming scientists. Primarily, the task involves education for all pupils for their own and society's benefit and only secondarily involves concern for the welfare or future of science. . . .

The preservation and advancement of our democracy depends to no small extent on the behavior patterns developed in children and youth. We do not know what the future will be. In a sense we must educate children for uncertainty. That does not imply that we need be pessimistic about the problems our children must face. Rather we can be confident that if we assist them to develop intelligent and resourceful behavior, they will make their own future.

. . .The outlook of children toward their environment and universe is the very core of the development of a resourceful adjustment to the future. While incidents play an important part in making learnings meaningful, science should not be incidental in the lives of children.

Altho we may look to the needs of the individual and of society to determine the setting of science in the elementary school, instruction must not be limited to talking about science. Teaching science should not be confined to a mere description of objects and events. Instruction must involve interpretation of phenomena if children's education is to be sufficient to cope with the problems of today and tomorrow.

We need to give attention to the content as well as to the method of teaching. Changed behavior should result from something more than cautions and commands. It should have a basis of meaningful content. The rich content of science should be directed toward the development of desirable behavior whenever possible.

The large patterns of the universe, such as space, time, energy, change, adaptation, interrelationships, variety, and balance, are patterns of growth and development from the cradle thru adulthood. These will never be mastered in our time and perhaps not in a thousand years by sci-

Index to the Future

entists, but research indicates children can begin to adjust to the large patterns before they enter kindergarten. Man's success on the planet is dependent on his ability to cooperate intelligently with the great forces and patterns of the universe. The teacher who is aware of the growth of the large ideas of science can avoid getting the instruction bogged down in small content. . . .

One is asked how may elementary school science keep up with the advances of science. The response to this question depends upon our outlook on science. Thru science man discovers and invents. But discoveries and inventions may be viewed for the curriculum in terms of the age-old drives of mankind and the large patterns of the universe. In this way the events of the contemporary can be better understood as parts of large patterns of development. A single contemporaneous advance may have much identical context with that of the larger patterns. In this way the work can be related from age level to age level. Any consideration of recent advances should be within the scope and purposes of elementary education.

New advances in science may be related to the large patterns of the universe. These patterns are more permanent in character than the individual objects of our environment. For instance, incandescent electric bulbs may disappear from our communities, but electricity as a form of energy is likely to be important for many generations. These patterns form basic conceptions for teaching and learning. These, along with the basic drives of science, provide us with the context of science and experience for the inclusion of the new advances of science. . . .

Boys and girls must learn to handle and to experiment intelligently with the forces and materials of the universe. Unintelligent tampering and carelessness bring disease, ugliness, waste of natural resources, unemployment, poverty, war, and widespread unhappiness. Children must develop a poised, well-balanced, yet realistic outlook upon the modern world. They must learn that by working resourcefully and intelligently they can create their own world. . . .

Science will continue to play an important role in the lives of our children. It is a powerful tool which can be used for good or evil, and children, the adults of the future, will have to decide how science will be used.

It is most important for the success of our way of life that children have a good feeling toward science. Science should not seem foreign or exotic to them. Science viewed as the result of the age-old drive of mankind to adjust himself to his environment and to maintain his own equilibrium in the welter of biological and physical forces carries with it a larger point of view than a purely vocational one. Science is the result of man's experiences and logical thinking thru the centuries. Science, like democracy or the mother tongue, belongs to all who wish to make use of it. Children should be made to feel that science belongs to everyone.

"Index to the Future," occupying our editorial space for this issue, is based on an article which originally appeared in the Department's 32nd Yearbook, SCIENCE FOR TODAY'S CHILDREN. *Gerald S. Craig, the author, is Professor Emeritus of Natural Sciences, Teachers College, Columbia University, New York.*

Next Steps in ELEMENTARY SCIENCE

NELSON F. BEELER

Many elementary school teachers and principals are concerned about the next steps in elementary school science. They would do well to re-read *The Origin and Development of Elementary School Science*, a scholarly but far from dull book by Orra E. Underhill.[1] The perspective of history may be an aid to thinking thru the present problem.

The educational values inherent in the nature of the scientific quest have been apparent to many people in the past. Many programs of science education in the grades have been frequently suggested thru the years by those individuals who have both specialized knowledge in science and an ability to establish educational theory and practice. Changing social and economic conditions, on the other hand, have many times impressed changes on the evolving science program. This is as it should be since the program of the schools must mirror the culture which supports it.

Early Science Education

Early school science was affected greatly by Christian theology. Thru science one could better appreciate the goodness and wisdom of the Creator. It was believed, furthermore, at this period in history, that education consisted in training the "faculties" of the mind. Classified knowledge as it appeared in formal science seemed to be the logical material to aid this process.

In the middle of the nineteenth century the rise of the new technology produced an effect on elementary science. A great number of books on the subject was produced which presented factual information to children and adults. Citizens demanded a more strictly utilitarian education to keep up with the new steam engines, the new factories and the burgeoning technical progress generally. This was in conflict with the traditional objectives of mind training and the prevalent idea of a liberal education for all as a basis for sound citizenship. In an attempt to please everyone, the stated aims of elementary science became all inclusive. No course of study could really hope to achieve them all. Science in the schools was hindered as a result.

The depressions at the end of the century brought the citizens to the schools to see where their money was being spent. The vocational value of science was stressed again. Home economics, the mechanic arts, and agriculture became part of the science curriculum. The promotion of agriculture was behind the nature study movement. The founders of this movement were talented and sincere but sometimes they were misinterpreted. They were biologists and agriculturists. The emphasis, therefore, was on living things almost to the exclusion of phy-

[1] Orra E. Underhill. *The Origin and Development of Elementary School Science.* Chicago: Scott, Foresman, and Company. Rev. 1941. 347 p. $2.50.

Nelson F. Beeler is Professor of Science at State University Teachers College, Potsdam, New York.

sical sciences. Pressure was brought to bear on the nature study curriculum by those who were interested in the physical sciences. By the melding of these two approaches the modern elementary school science program began to take its present form.

A New Appraisal

As we look back we see that citizen interest has turned to the science program in times of stress in the past. In each case elementary science was changed better to fit what society thought it should be. We are in the midst of a new appraisal of elementary science, this time under the shadow of the *sputnik* which has darkened our national materialistic esteem. Changes will be made. We must see that the changes do a service both to science and to society, as well as to the children whose educational guidance has been placed in our charge.

Some of the critics of education imply that by teaching at all one tacitly admits to justifiable poverty, anti-intellectualism, poor preparation, and an inherent tendency to undermine the scientific advance of the country. We are told that European children develop intellectual independence, critical spirit and sophistication by tackling a lot of the kind of work that American schools fail to provide.

It is well to remember in this context that it was a group of grown-up German and Italian children who surrendered to the blandishments of Hitler and Mussolini. It is well to remember, too, that the sound science education of the Russian child does not apparently set him free to see thru the hoax of Communism. It says in our newspapers that French children when they are grown do not build a particularly stable, dependable government in spite of sound learning of specific gravity in the grades. Clearly science alone is not enough. We must have sound science in a substrata of education in a democracy.

An Effective Program

Of course science can be taught better in the elementary school! (It can be taught better in colleges and universities, too, as anyone knows who has been in college science classes recently. The undergraduate aptly calls some college science courses 3-D—Dull, Dry, and Difficult.) Just how will we go about upgrading elementary science?

We can give elementary science the same status as the other subjects. One way to do this is to set up a series of science experiences which progress in difficulty of concept from grade to grade. This is already done in several available science textbook series. Let us make these books available to children. While we are using the present texts, let us find ways to make better ones.

We can provide experiences with actual scientific equipment. This does not mean that the simple materials from the child's environment are to be forgotten. But meters, microscopes, aquaria and other apparatus cannot all be improvised. We learn science by handling the tools of science. Let us provide these tools for children.

We can supply the classroom teacher with a fund of petty cash for science equipment and supplies. A lot of good science is taught in American schools only because it is underwritten by dedicated teachers. Too frequently the teacher buys the dry cells, the wire, the balloons, and a host of other "easily obtained" things because the process for getting them thru the channels of the school office is too complex, too time-consuming, or downright embarrassing. Some of the dollar-a-year-per-pupil which should be appropriated for science supplies should be available to the teacher for those science materials needed for an exciting project at the exact time that the interest is highest.

We can emphasize that science is measurement. To watch an electromagnet pick up tacks is an observation. To measure the effect of increasing the number of turns in the coil can lead to a generalization of far-reaching importance. Measurements should be made in the metric system whenever it is possible to do so. By the time he reaches high school every American child can be versed in this system of measurement common to the sciences and to a good part of the civilized world in its ordinary commerce.

We can tie arithmetic in with science. One function of the scientist is to establish relationships. Some of the simple relationships are ex-

pressed in numbers—the more involved ones need mathematical equations. We can begin early to show the inherent dependence of science on mathematics.

We can help teachers prepare science lessons thru in-service workshops. Such workshops should be run by good science teachers with both a flair for science knowledge and a feeling for children. Many teachers who had no elementary science themselves just do not realize what a "shot in the arm" a good science program can be.

We can provide science consultants. People like this can help to assemble materials, get information, help with the science concepts and in numerous other ways provide stimulating science class experiences. These consultants must be prepared in greater numbers by our colleges. They must be people who believe that elementary science is just as important to the country as the production of guided missiles or bobby pins or pure research in any of the formal sciences. They must feel that, by and large, the citizenry thinks so too.

We can call on child development specialists to keep watch on the science program. The use of these specialists can help us to be sure that the needs of children are served, that potential abilities are not squandered, but that impossible tasks are not forced on children in the name of the new Golden Calf.

We can take another look at science fairs and congresses. For instance, we should ask ourselves:

- To what extent are the projects presented truly scientific in tone and in implementation?
- Are we letting children get awards for projects thrown together the night before the fair?
- Are we using the science fair to judge teachers' rather than children's scientific creativity?
- Are we giving science awards to projects which are merely pleasant displays or hobby shows?
- Are we wasting time building displays which teach nothing besides giving a false impression of what scientific investigation means?

We can talk to children's librarians and to bookmen to find out what supplementary books are available in the sciences. We can make a judicious choice from among these science books written especially for children and have them at hand so that children can readily use them. We can ask teachers to spend some time browsing in this children's science literature so that they will know the right book for a particular child at the time when the book will make a significant difference in the child's outlook on science.

We can carry out some research on the available science books for children. For instance we should be asking ourselves questions such as these:

- Which science books attract children? Why?
- How much do children retain from their reading?
- To what extent do the books actually stimulate further reading, discussion and experimentation?

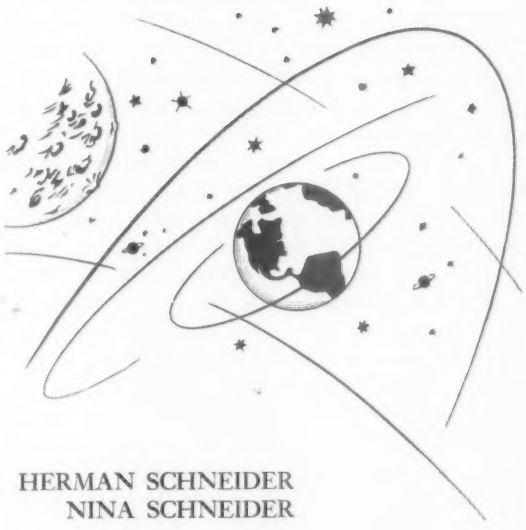
We can plan more science experiences of the problem-solving type. Within the problem-solving situation children can then be made aware of the many facets of scientific thinking. They can learn to recognize an assumption, a hypothesis, a theory, a partial generalization. They can learn that there is no one "scientific method" but only "doing one's darndest with one's brains, no holds barred"—and find it stimulating fun.

We can suggest some kinds of science experimentation to be carried out at home. Parents must be made aware of the science program and what we are trying to do with it. When a parent thinks that his child is not reading well, he comes to school and asks, "How is Johnny doing in reading?" No one ever asks, "How is Johnny or Jane doing in science?"

If the day should come when a parent does ask it, we can be ready to say, "Why, just fine. He likes it. He works hard at it. He is learning a lot. Even if he never turns out to be a practicing scientist—and a lot of people don't, you know—he will know how to judge worthwhile science when he sees it. It's funny, but a child can learn a lot of science and be well-adjusted at the same time. Of course, this is true for some adults who pursue science for a living, isn't it?"

Let's get on with up-grading science. It will be a valuable contribution to American life.

Role of Science in Child Development



HERMAN SCHNEIDER
NINA SCHNEIDER

In planning a science curriculum for elementary school children we need to consider two major trends. By now one of these is almost a truism—that scientific advances are causing, and will continue to cause, many alterations in the patterns of our daily living. The children we teach today may in the future use means of transportation, communication, and technology that we have not even begun to imagine.

Another trend, according to sober statisticians, points to an increasing rate of mental breakdown. Unless the trend is checked, they tell us, five or six of the children in any average classroom are likely to spend some part of their lives in a mental institution. The other children, needless to say, will not remain unmarked by the pressures that overwhelmed their more vulnerable classmates.

Age of Science or Anxiety?

Are these two trends causally related? Is the "age of science" inevitably accompanied by the "age of anxiety?" We have no ready answer, but as educators planning a science curriculum we need to explore the question. Has the scientific age that gave us jet transportation, antibiotics, television, and hydrogen bombs also contributed toward a greater and greater incidence of human failure? If it has, how can science education help mitigate the effects?

We know that advances in science and technology have caused a profound change in the individual's relationship to society. Sociologists who have explored the subject fully tell us that in the change from a personal, rural economy to an impersonal, predominantly urban economy, the individual has lost a sense of significance and rootedness. In a rural community, the loaf of bread, the home, the clothing were satisfying group achievements. Each role and skill was visible, comprehensible, and within the child's direct experience. The core of life was interdependence within a small group.

"Role of Science in Child Development" is reprinted from *Science for Today's Children,* the 1953 Yearbook of the Department of Elementary School Principals, NEA.

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In an urban economy the picture is different. Interdependence is not based on clear, personal, small-group relationships but on intangible, large-group economic arrangements. An intricate maze of processes separates the producer and consumer. What child can understand the relationships between individuals working at nameless tasks with unknown skills on an automobile factory assembly line? The anonymous relationship to the things we make and use has converted us into little islands, unaware of the substructure that joins us.

We cannot turn back the clock, nor do we want to give up the benefits of the scientific age in a back-to-handicrafts movement. But we do have to face the fact that the time of direct relatedness to our sources is largely over. So also is the time of gradual, fairly predictable change that gave people time to adjust, to find their places.

Today's changes are swift. Our six-year-old Bobby may want to drive a locomotive when he grows up, but we cannot honestly promise him that there will be locomotives for him to drive. We cannot promise anything—not economic stability, nor predictable social structure, nor peace, nor even the assurance that we have a workable program for achieving these objectives.

It is evident to every thoughtful person that the scientific age has been marked with violent dislocations of our economy, with terrifying competition for raw materials and markets, with an increasing tempo of destructive warfare, with a pattern of instability that deeply affects us all. Is it, then, mere coincidence, in this whirling kaleidoscope of a world, that an increasing number of human beings fail to achieve a sense of place and capacity, and withdraw, thru maladjustment and breakdown, from a reality that has grown too painful? Coincidence or not, these are our children and this is our problem: how can we educate our children to meet life confidently and competently?

Two Ways Science Can Help

The answers need to come from every area of the curriculum. In the teaching of science, particularly, we have an excellent opportunity to contribute in two significant ways. One of these ways has been recognized and constructively explored. The other one is as yet comparatively undeveloped.

A framework of concepts. We have all recognized the need for providing the child with those facts of science that can help him to make sense out of his physical world. Toward this end, we give him experiences that lead to an understanding of the processes by which his food, clothing, and shelter are achieved. Experimenting with plants, making paper and cloth, mixing cement, visiting a pasteurization plant, observing the school heating system—these activities and others like them can help to peel away the layers of anonymity that surround us and separate us from our sources.

We also try to relate his experiences to every curriculum area. We give added meaning to a social studies unit on water supply thru a science study of the water cycle, and we fortify its conservation phases by conducting experiments on erosion and soil water retention. Safety rules on the playground are shown to be logical and functional thru a study of friction and balance, and we hope that the concepts which are learned can be carried over into future situations. In numerous ways, we try to teach science as a framework of concepts on which the child can build and around which he can organize his future learnings.

Science for wholesome growth and development. But we can do much more with science, in a way as yet unexplored. We can teach science in a way that helps allay anxiety and contributes to the wholesome growth and development of the child. Moreover, we can do it without converting our science program into a course in social studies and mental health, without minimizing the accepted facts and concepts of science. What we need is a point of view, an orientation that can bring the science curriculum into closer relationship with the child's growth and development. Thru what we teach and how we teach it, we can help the child meet with confidence a rather complex and unstable world. Let us see what science has to offer.

Learning to live with change—One important contribution that a science program can make is helping children to achieve a sense of the dynamics of change. Nothing is fixed; the constant factor of our universe is change. Men, moths,

and mountains are subject to it. Yet many of us never come to terms with change; it seems random, terrifying, and unpredictable. We waste too much of ourselves fighting change. Here is a place where science can help us. The more science we know, the more order and rhythm we discern in the process of change. We find it in the endless travels of a drop of water—change of state, change of place—but always subject to reasonable and consistent laws of cause and effect. We see it in the wearing away of a mountain and in the metamorphosis of a butterfly. In science there is endless opportunity for observing and recording change. Growth records, seasonal changes, weather charts, bird migration records—all can highlight change as a welcome and dynamic part of our lives. Change in a raindrop, a leaf, a stone—change is the order of the universe. But it is an orderly and consistent change whose lawfulness becomes apparent as we explore.

Even tho we may never penetrate to the end, we can use our partially acquired knowledge. Magnets give us charted paths on the sea and thru the air, altho we do not fully understand magnetism. Machines move mountains, miles of cloth roll off weaving machines daily, altho our knowledge of the nature of energy is imperfect. We continue to explore, to push back chaos, secure that further exploration will always lead us to a deeper assurance of order in the universe. And if in our little piece of the universe, our classroom, we can consistently build a feeling-tone of reasoned inquiry toward change, then perhaps our children will be helped to live competently and happily in this age of science, this age of swift change.

Facts and feeling—We need to recognize the role of feeling in the presentation of facts. Thru the way we teach science, we can lead the child to extract from his experiences and observations a sense of security and reasonableness. In every curriculum, for example, we include a study of the solar system. We teach that the earth is a globe, revolving around the sun. This fundamental concept can move the child forward or push him back, and our point of view can determine the direction. We can present the facts in a way that highlights the sensational and morbid, a method popular in science fiction, television programs, advertising, and, alas, many classrooms. We can learn that the earth rotates and revolves thru dark, vast, unknown space at unbelievable speeds—"hurtles" is the favorite current verb. We discover that the sun's heat, fierce enough to evaporate solid steel in an instant, could blast us to fiery death or congeal us in graves of ice, by a comparatively slight deviation in temperature or distance. We are told that the earth is but a minute speck in the universe, and that we mortals are appallingly insignificant in geological time and astronomical space. How scientifically true—and how emotionally unsound!

It is equally true and teachable that the earth's turning, within its soft blanket of air, is steady and firm and sure, that it carries us smoothly into warm radiant sunlight and cool lovely starlight in the ceaseless rhythm of night and day. It is also true that the earth's rotation and revolution are so exquisitely precise that we can predict the exact moment when sunrise will illumine the peak of Mt. Everest a thousand years from today. All this is also scientifically valid and, at the same time, emotionally reassuring.

We must evaluate our facts to accentuate a positive, warm, hopeful attitude. Our choice of facts and the matrix of feeling in which we present them can guide a child forward toward security or contribute "scientific validity" to reinforce childhood fears and fantasies.

Science is good—We must emphasize, too, that the overwhelming proportion of scientific advances have been motivated by goodwill, by man's refusal to accept disease and poverty as inevitable. Scientists have overcome their fears and explored areas that were considered unknowable and demon-ridden. Their need to explore and discover good was greater than their fears. Most men of science were people who cared, who wanted people to live well. They were men of goodwill. They were not intellectual icebergs or manipulating demons of the comic-strip clichés. Children of today need to know that science is a subject that has social meaning.

Recognizing developmental levels—In building the science curriculum for our schools, we need to recognize and explore more fully children's developmental and experiential levels. We know, for example, that six-year-olds have a need for large-muscle activities and have difficulty with tasks that call for fine coordination and close

seeing. We recognize these problems by choosing, for these children, science activities that do not require closely controlled movements and precise visual discrimination.

But we also need to recognize the child's developmental levels in other aspects. For instance, at the age of six he is very much interested in his emerging self. This is a good time then for us to provide him with opportunities to observe, discuss, and experiment with his five senses; to encourage him to sniff and listen, to feel textures and temperatures, to become aware of his surroundings and to report his sense impressions, to move forward toward a more confident use of himself.

This is the time, too, when the young child shares with the robins the problem of leaving home, and he can gain strength from learning that other animals also grow toward self-care and independence. His fear of the dark is lessened as he experiments with light and shadow, discovers their nature, and learns that he can manipulate and control them. Painful competitiveness is reduced as the child discovers how group problem-solving has marked the great advances in scientific research. The 12-year-old boy's distress at being shorter than the girl in the seat next to him, and her equivalent alarm at being taller, can both be alleviated as they learn about normal human growth patterns. Thru the solid, tangible experiences of science, children can be helped in many ways to meet their crucial fears and needs.

A sense of place and capacity—Science can help a child achieve a sense of belonging. As he studies the natural world, he begins to see that altho the forms of life are exceedingly varied, the basic needs are similar, and that he shares these needs. All living things must eat to live and in one way or another must strive to obtain their food. Moles dig, foxes hunt, and father goes off to an office or factory—all to fulfill the same basic needs.

As he gains insight into the world of plant and animal life, a child discovers many patterns of deep interdependence and relationship. He finds the evidence everywhere—on a field trip to the park, in observing and tending an aquarium, in studying an ant community. The bird he feeds in winter and the toad he refrains from killing in the spring will both help to rid his garden of destructive insects in the summer. In these simple experiences in conservation he learns that his acts have significance, that he is part of the life of the world. With a growing sense of his own place and capacity, he is able to move outward into a growing respect for all of life.

An approach to the unknown—We see, then, that the body of science, its subject-matter, can be organized and can be taught in a way that contributes to the attainment of important goals in child development.

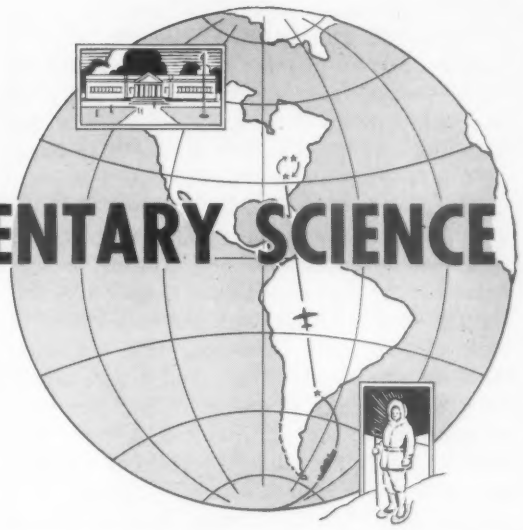
The method of science, too, can serve the child well. Out of his experiences in recognizing a problem and working out its solution, a child can develop a habit of reasonable approach to the unknown. He discovers that there are logical ways of working on a problem, either alone or with a group. Thruout a good science program he has many experiences in stating a problem, in probing, testing, failing, in evaluating his failures, checking his successes, and maintaining an attitude of open-mindedness toward new factors that may lead him to alter his findings.

From these experiences he derives a sense of confidence because he has achieved a measure of success. He has solved problems; he knows that he has the capacity and techniques for solving others as they come along. His experiences add up to a feeling of reasonable optimism about exploring the world of science. We can hope, and there are justifications for hoping, that this feeling of reasonable optimism will give the child a measure of confidence in solving problems in other areas of living as well.

Summary

Thru a good science program, we can help our children discover basic, inherent elements of rhythm and predictability, of cause-and-effect relationships, within a world of uncertainty and instability. In a shifting, changing social and economic structure, we can help children face life with reasonable optimism. We can help children grow and develop techniques and outlooks for functioning in a world whose constant factor is change. We can reasonably hope that experiences with science can contribute significantly toward a child's growth as a well-adjusted, happy member of society.

TOWARD *Leadership* in ELEMENTARY SCIENCE



MATTHEW J. BRENNAN

As I write these words I am sitting at my desk at Ellsworth Station, Antarctica, where I recently assumed my duties as Station Scientific Leader for the United States National Committee for the International Geophysical Year. It is difficult in the rush of the Station to try to look objectively at the program of elementary science in our schools back in the United States. Yet when one watches the work of the technicians and engineers who make up our scientific group and realizes their importance to the success of science and perhaps the future of the world itself, it becomes very obvious that the work of these men and many others like them had its roots in a sound program of science in our schools. You can't have one without the other.

Statistics tend to indicate that we have fallen behind in this important area, and if we have, educators must be willing to assume their share of the blame—and their share is a large one, I am afraid.

In an effort to improve our science program in the schools of America, we must first take a critical look at our situation as it exists today. It is by no means a rosy view, yet it is far from the hopeless and desperate picture which many see in their haste to criticize.

Many elementary school teachers who come to my classes are doing an excellent job. They come because they want to do better. Some are plain scared of science; all have acknowledged its value and rightful place in the curriculum.

In considering the problems of elementary science, there are three in particular which I would like to discuss further with you because they are problems for which you as elementary school principals can help to provide the leadership necessary to finding a solution.

Both this article and its author have traveled extensively in recent months. Matthew Brennan left the United States this fall for the Antarctic where he is Chief Scientist and Station Leader at the United States base at Ellsworth as part of the International Geophysical Year program.

His article was written partly en route to the Antarctic and partly after he arrived at Ellsworth Station. Mrs. Brennan, sending the manuscript on to us from her husband, commented on its travels: "From the Antarctic via ship to Argentina, via plane to Washington, D. C., via mail to West Nyack, New York, and back to Washington. Wouldn't I have enjoyed the trip!"

Prior to his current assignment for the IGY, Dr. Brennan served on the staffs of both liberal arts and teachers colleges. "When not in the classroom," according to Mrs. Brennan, "he can usually be found 'on the trail,' pursuing some quest in Labrador, Greenland, the Azores, or just the woods near home."

Acquiring Adequate Equipment

First is the problem of the teacher who wants to teach science and has little or no equipment except what he buys himself. I know that many of you who read this article will say: "It's not our school. We have the best equipment money can buy! Must be that poor school in the next town." But it may not be! It may be your own.

As a long-time advocate of tin cans, balloons, and home-made materials in the science corner,

I know that many teachers have used the excuse of inadequate materials to explain the lack of a science program in their classes. But too many teachers make this complaint for us to pass it off so quickly. Many who teach in the new and beautifully equipped schools do not have a simple $10 fund for the purchase of what I may call expendables for lack of a better word. I'm talking of dry cells, wire, light bulbs, magnets, candles, tools, matches, and a host of day-by-day items that the most experienced teacher in America will need to do his work and which must be replaced not every September first but, most times, at a moment's notice. And, I dare say, in the majority of our schools to replace them on a moment's notice he will have to buy them himself. As principals you can help your teachers, especially the new ones who are desperate for a helping hand. There are many ways to do this but for lack of space I shall mention only two.

First, give them the freedom within the curriculum to start their science program with the area of either their own or their children's major interest. In this way both teacher and children start off with the advantage of interest in the subject. No more is needed. Page one in the text is not necessarily the best starting place for your teacher or for the class. Too many of our teachers must start at page one and continue blindly thru to the end.

Second, and most important for the principal who wants to have the best, let your teachers in on the vast mass of resources within her class. Many an old hand, stymied by lack of the aforementioned $10, has acquired a room full of materials simply by asking if anyone in the class had, for instance, an old doorbell or a spring balance. Children will raid their homes in the struggle to bring in the precious items which their lessons and interests demand. Tell your teachers also that if the children do not bring in the necessary materials they should forget them and turn to something of interest. Otherwise, they are only wasting time in a curriculum situation in which seconds are precious and cannot be lost.

Finding Time

Our second problem is a lack of time for science. Altho the problem is a serious one and is not as unusual as many would like to believe, the answer is obvious to any but the uninformed in this day and age.

If this situation exists in your school, it is time for a serious re-evaluation. It is not enough to pretend that the next grade will pick it up. It may be too late to revive a lost interest. I will say more of this in the next section.

Stimulating and Maintaining Interest

The third problem is the loss of interest in science which is all too apparent in our schools. In fact it was a discussion of the question, "How can I stimulate an interest in science in my class?" which prompted this article.

This question is the basic one, yet I always answer it by saying that it is not the question at all. The real question is: "Where did my children lose the interest and curiosity about the world around them with which they were born and which they carried with them when they came to the school? And why did they lose this interest and curiosity?"

It is not necessary to remind a group of educators that children learn by inquiry to satisfy an innate curiosity with regard to the world in which they live. Their interests are limitless, their enthusiasm unbounded. So first we kill this interest and then wonder what we can do to stimulate it again. Would not the search for the answer to the real question be the basic objective of education?

In an effort to explore this question, it seems that there are some ready answers if we will only have the energy to analyze them and the courage to remedy them. Each of these answers which I propose involves a different agency: the teacher training institution, the elementary school program and its flexibility or lack of it, and the teacher who is involved all the way along. In each area, you as elementary school principals can play a role of leadership.

The teacher training institution. I am not about to get involved in a discussion of the relative merits of subject and methods courses. Probably the question will never be resolved. But I have taught at institutions which stood at the opposite ends of the scale and have taught both "methods" and subject-matter courses. Some observations

which may help to answer our question may be found in each case. You have all seen the brilliant subject specialist who could never be a good teacher and the teacher who had learned how to teach but felt insecure in some subject-matter areas. Unfortunately science seems to be the big loser in this situation.

So, allowing the merits of the methods course in the elementary school teacher-training curriculum, let us examine the difficulties which it can create in this "killing of interest" problem. When you as a principal go to the teacher training institution to hire teachers, you may hire four or five of the best they have and still end up with what to me is the major cause of our problem. Your second-, third-, fourth-, fifth-, and sixth-grade teachers have all taken the same courses, including science methods. All too often, this latter course has given them an identical ready-made kit of spectacular demonstrations, covering the area of science. It is not their fault that they are all teaching the same old materials to each succeeding class. You have the right and the duty to insist that the methods courses which teachers take deal in principles which can be applied to any level of learning, even their own as they grow. These principles will provide a basis from which to develop good science programs.

Your teachers do not need a ready-made kit. They need the training and experience which will allow them to adapt any area of science to the level and interest of the group which they are teaching. Then every interest can be encouraged rather than stinted. Teachers with such training are secure in their ability to aid learning; they aren't just trying to feed facts to children as they would nourishment at a specified hour of the day or week.

The elementary school curriculum. I will speak not only of science in this respect but of all subjects. There is no sight more discouraging to me than the frustrated look on the face of a child who has to leave his science lesson at the end of the prescribed period to turn to his work in history, or the child who is told to put away his paints because it is now time to study magnetism or weather. Isn't it obvious that it might be the worst possible time to study weather, whereas during the storm which rattled the classroom windows in the midst of the arithmetic class the hour was at hand?

Do you have so little faith in the ability of your teachers that you feel you must prescribe and direct every movement in every subject? The good teacher will use his group's interest in science or in anything else as a means of moving along in the other areas. More reading is done, more pictures painted, and more arithmetic studied when it comes as a result of a child's desire to learn of something in which he has an interest, a curiosity. The questions of the five-year-old are endless as he seeks to learn. The questions of the child in the average elementary school classroom are too often answered with the old refrain: "We can discuss that during the fifth hour. Right now are there any questions about the farm crops of the Midwest?"

Keep in touch with your classes. Know your teacher. If learning is going on, let it go on. When you see that the situation demands prescription, prescribe.

As a scientist as well as a teacher, I am prejudiced in my feeling that the only rational stimulation to learning is the world around us. The particular aspect of that world is unimportant—whether it be biological, physical, or merely a purely esthetic enjoyment of beauty. All learning can go on from there. Any other approach will leave us exactly where we stand today, with science in many classes neglected and dying for want of a proper focus and for want of a proper setting.

A final word to your teachers. Help them to be unafraid of the question they cannot answer. They need your help in this as much as in any problem in their work. I am constantly asked: "What will I do? Won't they lose their respect for me if I don't know?" My answer is, I believe, a simple yet accurate one! "I welcome such a question from any of you. If I don't know the answer I will help *us* to find it. In most cases I will help *you* find it for yourself, even if I know the answer." And finally! "If I knew the answer to every question, I would not be teaching this class. I would be sitting at a desk somewhere at a fabulous salary solving the problems of the world."

As principals you can do much to stimulate confidence in your staff with this kind of help. Then we may look forward to the day when we will be unable to find a teacher who will be able to say, "I'm just afraid to tackle science."

FRAMEWORK for the SCIENCE PROGRAM

ROBERT K. WICKWARE

In these times when educators are being challenged to develop improved science programs, there are many questions which we need to ask.

Will elementary science emerge as one of the major forces in the curriculum contributing to the development of adequately informed and creatively oriented young people? Will it assume a dignity in the school life of children in keeping with its place in the lives of adults and the culture of which it is a part?

Can experiences in elementary science help children to sense the tremendous potentiality of science in contributing to the betterment of society? Can the goal of optimum development of each individual be forwarded thru first-hand science experiences for young people?

Can science activities become a dynamic factor in helping boys and girls understand the place of experimentation in gaining knowledge? Will all of these boys and girls have immediate experience with the problems and thrills of actually experimenting in an honest search for answers?

Will the program have adequate time allotments and provision for first-hand experiences with real materials? Will it be basically oriented to the lives of children and their need for reacting creatively and intelligently to their environment? Will the gaining of broad insight into the data and methods of science be a recognized goal? In short, can we afford to let elementary science be anything but an exciting, challenging, and critically important part of a curriculum for children growing up in the latter half of the twentieth century?

Robert K. Wickware is Professor of Education, Willimantic State Teachers College, Willimantic, Connecticut.

This article is based on a speech given by Dr. Wickware at an assembly on "Science and the Elementary School" during the Department's 1958 Annual Meeting.

These are questions we need to ask ourselves now and in the immediate years ahead. The times have *long* demanded that we move ahead in developing experiences in science for elementary school children. Present events have already caused and will further cause pressures to be exerted for including more science. The challenge to educators is to see that we do bring an improved science program to fruition.

Asking ourselves these questions may do something to put us in a provocative frame of mind, but the basic question still remains: what can we do, as principals, teachers, and educators in general, to achieve these goals? First we need to assess the setting in which this elementary science program is developing.

Setting of the Science Program

The very wonderment of children about the world in which they live establishes one phase of the setting of the elementary science program. The impact of environment on children has thruout the ages been dramatic and charged with potential learning. Our present knowledge of science has increased this potential learning to a remarkable degree. A number of aspects of children's interaction with their world clearly indicate that experiences in elementary science are necessary for their adequate orientation to that world. Among these would surely be listed:

- *Following thru to satisfy their curiosity.* What's happening? Why is it happening? What makes it go?
- *Growing up and learning to live with and use intelligently the forces and materials of their environment.* How can I use the wind to my advantage? Why did John keep going when his sled stopped suddenly? Why can you split only certain kinds of stones? Why can't I throw a ball off the earth? Why does it always fall back?

- *Needing to have a sense of belonging, of feeling at home or at ease in their environment.* Why doesn't Mary want to play down in the woods when she comes from the city to visit me? Why does the noise of the waves frighten Janie? Are you sure that frog won't bite? Is that snake really all right to hold?
- *Integrating these bewildering new discoveries into their picture of "how things are."* Why didn't *sputnik* come down? Can they really stop gravity? How can they keep foods that aren't even cooked without spoiling? What's this sound barrier they cracked?
- *Needing to make wise choices in purchasing and using materials developed thru modern science.* Will it be worth it to pay all that extra for orlon? Will my plastic airplane crack when it gets cold? Will this film be too fast for my Brownie camera?
- *Wanting to be a scientist.* I'm a girl—what could I do in science? Do all scientists work in labs? Is being a scientist dangerous? What can I do to help me become a scientist?

These, then, are some of the reasons why science comes "naturally" to children.

Another aspect of the setting in which the elementary science program is developed is related to the demands society makes for the use of scientific data and methods in advancing the general welfare. To fail to give consideration to these demands is to neglect the long-term view of the place of science in our culture.

Some of the ways in which society expects science to contribute to our culture are stated below. Each needs to be expanded as it is analyzed in terms of a specific community or school. Science can contribute:

- In helping us to use creatively the materials of our environment for the good of mankind and at the same time helping to minimize the problems of dwindling supplies of some materials.
- In extending each citizen's awareness of the frontiers of knowledge—an awareness needed to help in effecting future changes.
- In understanding, interpreting, and feeling at home in a rapidly expanding world of space and a shrinking world of nations and peoples.
- In helping us develop competence in democratic processes, especially those related to scientific methods of solving problems.
- In acquiring the techniques and data or sources of data to help solve individual problems and those of communities and nations.
- In developing an awareness of the need to extend our scientific knowledge to all countries.

A third significant aspect of the science program's setting concerns the impact of modern knowledge of child growth and development. At no time has the role of individual differences been recognized more clearly, and these differences must be a major consideration in planning and carrying out experiences in science with children.

Some types of science experience can be profitably carried out on a group basis in the average classroom. However, in working with the materials of his environment, special provision needs to be made to enable the child to follow thru individually in a creative and satisfying manner. This necessitates that there be a place where children can work *individually* and in *small groups* on science activities of interest to them. Whether this is called a science center, science corner, or some other name is not important, except that it should be something more than an exhibit area or a spot to collect things. It should be a place where children can work *actively* to develop their creativity and expand their background of first-hand experiences. Just as individual differences are recognized in the provision of an art easel, a reading corner, and a play center in the early grades, so should a science center be provided to nurture interests in science.

A second now widely-recognized fact of child development is that individual growth results from the interaction of maturation and learning. Recognizing this in our teaching, we can draw much help from the fact that children, as growing and developing individuals, have quite clearly defined *needs* related to and dependent upon their physical, emotional, and social maturity. These are not simply diluted adult needs. They are specifically related to the problems of children growing up in our own particular culture and may be significantly different from one level of maturity to another.

These developmental needs give many leads for planning and organizing experiences with children. If their experiences in science are in consonance with these data, children can be more easily helped to grow in their understanding and

use of science in a satisfying manner. When their science experiences are in contradiction to these data, much unnecessary frustration and thwarting of creativity can develop with, at times, an accompanying impression of science as too difficult, too abstract, and quite unrelated to children's feelings or needs as growing individuals.

Each of the developmental needs listed in texts for various maturity levels can be used to identify specific science experiences. A chart of such needs and experiences has been found useful by many teachers in sensing the science experiences which would be effective for a specific maturity level. However, it should not be construed that science activities can alone lead to complete satisfaction of any one of these needs. This final achievement will be based upon a broad series of experiences over a long time span. Science activities, tho, can make a significant contribution in that long process of education and growth.

It is now more important than ever to look at the setting of the science program as a whole. We must not allow recent developments to overshadow our consideration of children's basic and firmly rooted needs for experiences in science and of some of the modern data on learning which can enable us to develop a sound program. In many areas, at least until very recently, an elementary science program which gives children an opportunity to experiment and study science realistically, has been considered a "frill" of modern education. We cannot allow ourselves as educators to be catapulted into initiating a science program which merely dilutes the present high school or college content, and which adopts a rationale almost totally unrelated to the purposes of the elementary school.

The Principal's Role

The principal needs to help bring about a climate in which teachers and children can develop an optimum learning situation. This is basic to a science program which must above all be related to what is real to children. Starting from this point, the vast implications of these basic experiences can be carried to the point appropriate to the maturity level of the children.

An example may help to make this more specific. A group of children were studying the use of steam as energy when someone wanted to know why the weight on a pressure cooker bobbed up and down. To answer his question the teacher heated a test tube with a cork stopper and a teaspoon of water inside until the cork popped up to the ceiling. With a group of first-graders this simply helped the children to see there was real power in steam. But the same demonstration with fourth-graders resulted in a discussion of moving molecules and explosions in general. For a group of eighth-graders, the demonstration served to review the idea of molecular motion and was soon expanded and related to an idea in the weekly science paper. This article dealt with heat engines which could use the heat in water (or outside air) even after the water seemed cool to the touch but actually had a lot of heat left in it.

In each of these cases the thinking was rooted in a discussion of something tangible in the children's experience. In each case the resulting subject-matter and the leads for *real* research were related to the group's maturity and their ability to bring pertinent ideas to bear on the explanations they sought. If each science discussion is rooted in something real to children, the limits of their search for understanding will be beyond the fondest expectations of parents, scientists, and teachers. The role of the principal is to help teachers key their science discussions to something real to children. From that point, further motivation for a genuine learning experience is "self-propelling."

This emphasizes the need for teachers and science consultants or other resource persons to play a critical role in planning their own science programs. If courses of study are already "prescribed," then thru grade-level committees or other groupings, the work must be thoroly analyzed for its relevance to the children, and modified to make it pertinent and challenging. Just as children seem to be stimulated when they work in pairs or trios, so do teachers develop their own spontaneity and resourcefulness as they talk over ideas and results with others. Even a "suggested" curriculum, if not made to be "ours," can stymie creativity and individual initiative.

The role of the principal is critical in setting a climate where experimenting can go on, with successful and unsuccessful experiments equally acceptable. The principal can facilitate children's understanding of the role of failure in real ex-

perimenting. Life is not a series of successes for anyone, especially for real scientists, and growth thru acceptable failure is a vital part of meeting life head on. Many aspects of the problem of conformity and non-conformity can be clarified for children thru an active science program.

If experimenting and research by children is honestly encouraged, how can children's desire for more information be honored when "there is so much other 'stuff' to be *covered*"? Here again the principal can help teachers work out an appropriate balance between these ever-developing new short-term ideas and the planned long-term sequences essential in a good program.

In many schools the proportion of one-third spontaneous or short-term experiences to two-thirds long-term sequences may be appropriate. Short-term experiences will absorb a greater emphasis in the early grades than in the upper grades. But spontaneous learning experiences need to be encouraged and honored at all levels; often they are the most vital and longest remembered. In these days of dramatic science news, spontaneously developed experiences take on even greater significance.

Equipment and Organization

Certainly, science equipment and materials can not be listed as one of the frills of modern education! What a struggle many a teacher, and perhaps principal, has had in obtaining even minimum supplies and equipment. The provision of a small petty cash fund for each teacher's use could do so much to insure the purchase of unanticipated items needed when the discussion is "really hot." It is true that much elementary equipment can be made by children, teachers, and parents if *working* tools are available, if such activities are acceptable parts of the school day, and if there is an active PTA with a functional program related to the needs of boys and girls. But again the principal has a major role in showing the need for supplementary materials and equipment to the administration, and perhaps even to the board of education. An expenditure of $50 per year per room for science equipment would not raise the per pupil cost significantly, but it would do much to stimulate learning experiences in science for children of all ages. Lists of such good supplementary science material are available from many sources. (The author of this article will be happy to send one free of charge.)

Not only is it important to have materials and equipment available; they must also be accessible. They must be organized in a way to encourage experimenting by children and at the same time not put undue time burdens on the teacher. A simple set of three or four shelves built above a table, cabinet top, or even on wooden orange crates will hold most of the material needed by children. If cardboard cartons of a size suitable to put on shelves are located in a local store, the manager will usually be happy to save them until the desired number can be collected. These can then be painted by the children with aluminum paint (it covers the printing) and even decorated further as their fancy dictates. Labeled by topic, such as air, sound, or heat, pertinent material can quickly be grouped in them. Boxes of this type have the immediate advantage of being readily accessible to children, of being conducive to having materials put away promptly and easily, and of tending to stimulate further experiments as children explore the contents of the various boxes. Other suggestions to aid in developing an experiment center in the classroom are available from many sources.

One final point should be made here toward encouraging field experiences and the use of resource persons. In many schools, the administration plays a critical role in this whole problem. Since science is basically a study of the environment, it is imperative to help children study their environment effectively and with increasing discernment. With problems of transportation, insurance, teacher liability, and the like, field trips are a matter for serious consideration. The use of resource persons is not charged with as many seeming liabilities, but the problems of developing files to insure ease of contacting persons and then enabling them to make contributions suitable to the children demand intelligent and consistent planning.

There has always existed a need, now sharply intensified, for a sound elementary school science program. If we can accept the challenge of a *sputnik*, yet not find our procedures nor our thinking clouded by a fog of blind apprehension, then we can move ahead surely to help children continue to fulfill the promise of America in the years and generations to come.

. . . . comments on Science Activities

On this page we present a variety of comments about community reactions to the space age and about some of the ways in which the schools are informing laymen of their science activities. Two members of our Editorial Advisory Board, Ellen Lee and Joseph P. Lassoie, collected these comments for us. Contributors were L. G. Blood, Rapid City, South Dakota; Margaret Dobbs, Cheyenne, Wyoming; Vincent Dodge, Fargo, North Dakota; Glen Frey, Keokuk, Iowa; Mrs. Ruth Lampert, Huron, South Dakota; Dale Moberg, Richland, Washington; D. B. Nerison, Aberdeen, South Dakota; and C. H. Rogge, Sioux Falls, South Dakota. All are elementary school principals except Mr. Moberg who is a curriculum assistant.

Sputnik and related space advances have undeniably focused attention on the science program. But the extent of their impact remains difficult to judge and seems to vary from community to community. For instance, these comments:

"The news about *sputnik* is going to make teachers more conscious of the implications of science education" . . . "Recent space developments will tend to introduce more curiosity about science into the classroom. By their interest children will demand more science" . . . "We have tried to anticipate the impact of *sputnik* on long-range curriculum planning in the science area. Fortunately, we had become somewhat critical of our science program and were well along in our study, albeit in a somewhat leisurely manner. The advent of *sputnik* and the barrage of criticism has not stampeded us at all. However, we are no longer proceeding leisurely."

"With the missile-launching base to be built here soon, we'll have a group of parents who will expect an above-average science program in our schools so we are working towards that goal" . . . "As I think of our science program, I do not believe it is being handled too differently from the past. Certainly, tho, parents are more interested when their children come home and say, 'We had an experiment about air today.' "

"In our city, because of the pressure of current world events, a Citizens Committee on Education has been formed by invitation of the board of education. This representative group of thirty-seven persons is making a study of curriculum content and procedures with the intent of recommending changes if any are necessary."

In trying to interpret their science programs to the community, schools utilize a wide variety of procedures. For instance:

"The parent education study programs in our elementary schools help parents become acquainted with the school program. Demonstrations of teaching techniques and procedures and exhibits of materials are provided for these study sessions. These parent meetings are usually held on a grade-level basis and over a period of time the parents are able to comprehend the vertical as well as the horizontal curriculum arrangement."

"The most recent move here in bringing science to public notice is the appointment by the city commission of a city-wide Science Scholarship Committee. This group is composed of educational leaders from both public and parochial school systems as well as lay people. The purpose is to provide scholarships in science for students and teachers. We hope that about $10,000 may be available for this purpose."

"We find parent visitations helpful in interpreting the science program: parent-teacher conferences, visits during American Education Week, and PTA programs in which the parents visit their children's classrooms" . . . "We have not tried to interpret the science program to our parents in a formalized program. The students are the best public relations program that a school can have. We are attempting to make the program so interesting that the students' response will carry it into the home."

"Hundreds of parents learned a good deal about our elementary science activities at a recent week-long science fair. One of our parents, a scientist, served as chairman of the judging committee. We arranged for press coverage and invited all the parents. When the visitors arrived, they saw over 150 projects contributed by children from grades one thru six. It was an impressive display of scientific know-how and parent-teacher cooperation."

from Latin America

Four Latin American countries have contributed articles to THE NATIONAL ELEMENTARY PRINCIPAL this year. The articles were prepared by a group of educators from Bolivia, Paraguay, Panama, and Guatemala who spent ten months as students at The Pennsylvania State University.

Articles written by students from Bolivia and Paraguay appeared in the December issue. Also included in that issue was a brief description of some of the experiences and activities of the group during their stay in the United States.

Articles written by students from Guatemala and Panama are included in this issue. The Guatemalan article discusses the problems and opportunities for rural education in Guatemala. It was written by Oscar de Leon Palacios, a specialist in rural education. He is now a professor at the Alameda rural teachers school on the outskirts of Guatemala City. He is employed by the Servicio Cooperative Inter-Americano de Education in Guatemala. This is the educational division of the Point Four Program which is helping to improve education in Central and South American countries. Mr. Palacios is also an author and has written reading and arithmetic textbooks for rural boys and girls.

The article written by a Panama educator is different in nature from the other articles in this Latin American series. The students from Panama chose to consider quite directly the contributions they feel the United States program of education can make to the solution of their own educational problems. In consequence, their spokesman, Eliseo Cedeno Bermudez, does not discuss Panama directly but rather indicates the country's educational needs thru the practices and points of view in our educational program which the group identified as most likely to be helpful in Panama.

The author of the Panama article, Mr. Bermudez, is an inspector for the province of Chitre in Panama. He has 96 schools and 300 teachers under his supervision. Mr. Bermudez' particular interest is in primary education. He has been in the field of education for 23 years, working as a teacher, a principal, and now as an inspector of a province.

A pottery vendor in the town of Solola, Guatemala
Pan American Union

RURAL EDUCATION in GUATEMALA

OSCAR DE LEON PALACIOS

A Guatemalan Indian housewife (right) purchases plums from a vendor in a market-place in Amatitlán. Accompanying her is a staff member from the Institute of Nutrition of Central America and Panama.
United Nations

Set amid numerous inactive volcanoes and many surrounding lakes, including the world famous Lake Atitlán, Guatemala has an overwhelmingly Indian population. The Indians differ in language and costumes from village to village. Altho Guatemala is a small country, its population is about 3,000,000, 55 per cent of which are native descendants of that great Indian race—the Mayas.

Before the conquest of the Spaniards, the Mayas produced amazing mathematicians, great architects, and artists excelling in the use of both form and color. They displayed rare skill in making wood carvings and stone sculpture, and much of their work can be seen today in partially deterioriated ruins.

When the Spaniards invaded the Mayan territory, the natives realized that it was useless for them to resist and so submitted to the will of the "conquistadores." The natives were used and abused. They were subjected to all kinds of cruel treatment, and in many cases were even physically branded just as horses and oxen were branded. The vanquished race felt that their existence as a free people had come to an end. They suffered a cultural stagnation which converted itself into a regression.

The Guatemalan Indian is dignified, honest, proud of his history, and in many ways true to his ancient customs. But despite the early colonial laws purposely enacted to protect the natives from exploitation by the "conquistadores," despite the attempt to incorporate them into a European civilization—particularly in the realm of religion, despite the good intentions of our early legislators after independence from Spain and the enormous progress of world peoples in recent years, still one can say with entire frankness that the way of life of the grand masses of the Guatemalan rural population—80 percent of the total population—is seriously retarded when compared with the most modest way of life of the average American family in the United States.

Guatemala's national economy is based on agriculture. The government realizes that thru rural educational programs a better way of life and a higher standard of living will result. However difficult the task might be, we are aware of and must consider the following factors:

- The majority of the rural people are illiterates and the majority are also extremely poor. The cost of living almost parallels that of the United States, yet the average cash receipts for a family having five members is scarcely one hundred sixty-four dollars a year.
- They ignore almost completely the champions of western civilization.
- They are very reluctant to use electrical power, agricultural equipment, modern means of transportation, newer medical methods, and many other advancements. In addition, the rural people are timid and it is difficult for them to defend their natural and citizenship rights.
- They have a short life span—the average being thirty to forty years.
- They have an enormous infant mortality rate—almost 45 percent.

These are some of the problems which confront us today. To educate these people in totality is the major educational problem of Guatemala. To achieve success in solving the problem will indeed depend on the efforts of available educators and the programs initiated.

The philosophy of rural education in Guatemala is formed by the following beliefs:

• We believe that the Guatemalteco is eminently social and has the potentiality of development—capable of transforming thru his own efforts the more adverse conditions of the environment in which he has lived.

• We believe that education has demonstrated heretofore that it is the major avenue for accelerating the integral progress of the towns of our country.

• We believe that any human is susceptible to a change in behavior—that thru adequate and needed educational processes he will benefit from learning good habits and attitudes and will eliminate the poor ones.

In accordance with this creed we have formulated the following principal objectives for Guatemala's rural education:

• To improve the economic condition of the family thru the medium of an education which will promote development of our national resources, and the employment of better methods and techniques in work.

• To prevent sickness and preserve the health of the individual, also collectively, thru the medium of hygienic and sanitary education.

• To give dignity to the farmer's home thru an education that prepares men and women to understand and fulfill their duties and responsibilities as wives, fathers, and children.

• To promote better eating habits, dress, and living among the farmers.

• To teach the farmer to make use of his leisure time in a sound recreation program.

• To increase the social relations of the members of the community, thereby developing good citizenry.

For the development of its Rural Improvement Program, Guatemala has set up an organization called Direction for Social Rural Educative Development and an educational organization named Farmer Nucleo School.

Thru the combined efforts of these organizations a program of action has been inaugurated in five areas: economy, health, home improvement, recreation, and general culture. In each of these aspects one encounters a specific program which should be developed with all the people of the community—adults, adolescents and children.

Rural education in Guatemala has received from the United States of America the interest, cooperation, and collaboration of the Inter-American Cooperative Administration.

We feel confident that with this help and the inauguration of our educational program, that once again our beloved Mayans will achieve the epitome of good citizenry and give many "illustrious sons" to the world.

For BETTER EDUCATION in PANAMA

Last year twelve of us from Panama attended the College of Education at The Pennsylvania State University. Time and time again—during classes, workshops, and internship experiences—we were told: "We are not asking you to adopt our educational methods and techniques, because what works for us may not work for you. On the other hand, ask yourselves if you can adapt some phases of the programs you see in operation in American schools to the particular needs of your own country."

In retrospect as we lay plans for helping to improve education in Panama, we feel that there are indeed a number of facets of education in the United States on which we need to focus our attention and which we should try to adapt to our school system. We are aware that each province in Panama will differ as to its needs; nevertheless

Santa Rosa, Panama. This typical village along the Chagres River is one of five used for malaria studies.
World Health Organization

Panamanian school children drinking milk distributed by United Nations Children's Fund.

UNICEF

there are certain basic ideas which can act as a general guide for all of us.

One of the major areas in which we can utilize some of the viewpoints and techniques of American education is in providing maximum opportunities for each child to learn and progress. Perhaps most basic to our achieving this objective is increased emphasis upon the study of individual differences. We in Panama need to be alert to the need to gear our educational programs to the particular requirements of each child.

As a means of accomplishing this purpose, we need to plan a well-organized guidance program which will make use of intelligence tests and the child's cumulative record thru all the grades. The school environment should be pleasing and attractive, conducive to each child's expressing and cultivating his own interests and aspirations. At the same time, we must help the child to understand and evaluate his work and achieve intelligent self-direction.

We also need to place greater emphasis on individual teaching, with concern for the needs and potentialities of all children. In this manner we will be enabled to help each child progress according to his own ability. We need to stress the importance of providing the kinds of experiences that will contribute to the over-all development of each child—socially, physically, and academically.

To help in strengthening our education program, we need to provide more in-service training for teachers. Among the possible ways to do this would be to sponsor workshops in each school at the beginning of the term with the purpose of planning and discussing the coming year's work; to hold institutes on various subject-matter areas during the school year; and to hold a meeting at the end of the school term to discuss deficiencies encountered during the year.

Thru the improvement of teacher supervision we can also provide another avenue of improved in-service training. This will involve giving better training to the directors of elementary schools whose functions are of a supervisory and administrative nature. We feel we can also further better teaching by providing for the interchange of teachers among schools.

Good relationships with the community are important not only for the good of the child, but also for the total good of the community. As a first step in building such relationships, we need to emphasize the importance of studying the community and identifying its problems. With this background, we can proceed to seek methods of utilizing local resources, acquainting the public with the need to give support to the schools, and coordinating effectively service of the schools and other community agencies.

We also realize that our schools have a responsibility to fulfill in planning activities which will better the cultural level of the members of the community and in providing interesting opportunities for the public to know their schools.

These are some of the ideas gained from our study in the United States which we feel we can apply to education in Panama. Only time and effort will tell how successful they are in helping to meet our particular problems.

But, regardless of this, we twelve Panamians as well as our other Latin American friends are grateful for the opportunity to study and live in the United States for a time and to observe teaching methods and administrative responsibilities here. We are indebted to the Inter-American Cooperative Administration—better known as I.C.A.—for making it possible for us to spend a year in the United States. This year has helped us to erase some of our misconceptions about the customs, attitudes, and habits of people here. And we hope that by living with American families and speaking before various organizations we have been able to help, too, by giving you here in this country a better understanding of our history and customs. Only thru such understanding can we build closer relations among countries.

AN IN-SERVICE SCIENCE PROGRAM

EVAN C. RICHARDSON

One day in November 1954, the president of our college called the faculty's attention to some of the ways in which other college staffs were developing programs designed to assist their communities. He suggested that we should search for similar opportunities in our particular fields.

Since our college has been engaged principally in programming to prepare elementary school teachers, we of the science department were well aware of the local school districts' need of strengthening their elementary science programs. So often feelings of inadequacy and insecurity of elementary school classroom teachers are linked with science and the curricular needs for science activities. The professional course work which we were offering in science usually seemed to be effective but very commonly insufficient. We agreed that the college could make an important contribution if we could do something to help the local school districts with their elementary science programs.

Developing a Program

A committee was formed to propose a program for in-service help to local school districts expressing a need for assistance in elementary science. The committee suggested that elementary science workshops of various kinds be encouraged.

Questions raised by this proposal were: 1) Could we identify a few persons with science training and understanding, persons experienced in working with teachers on elementary science problems, who would be willing to serve as a basic panel of resource helpers to the local school districts? 2) What assistance might the state department of education offer in such a project? 3) Did the leadership in the local school districts feel that elementary classroom teachers needed help in science? 4) Would the leadership in the local school districts make use of a panel of helpers or consultants by planning various kinds of up-grading activities in science with their elementary school classroom teachers?

The first question, whether we could secure qualified resource people, was quickly answered positively when several members of the science department agreed to help with the project. This provided us with a basic consultant team of six persons who would be available within the limits of their teaching schedules. But six resource people to serve the whole state was only a beginning. If there were a real demand for help in many parts of the state it seemed certain that additional help from other colleges and from local school districts asking for workshops could be discovered. In actual practice, both of these sources of extra assistance were utilized.

Representatives from the state department of education also expressed interest in the project. They advised that we determine how the county superintendents of schools felt about the need for in-service action to help teachers with elementary science. A questionnaire sent to the county superintendents was answered by 19 out of 21. Eighteen of the respondents agreed that there was a need for up-grading elementary school science teaching in their districts. They felt that workshops were usually of assistance in helping teachers and expressed interest in the kind of project we were developing. Several indicated concern, however, about the costs involved and about the remoteness of certain districts from the Newark area.

The Project in Action

With the assurance that our help would be welcome, we contacted the state department with the information that a team of elementary science specialists was ready to serve any ele-

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mentary school group in the state. The department included a note about this service in their monthly newsletter to county superintendents. The editors of the *New Jersey Education Association Review* and the *Bulletin* of the New Jersey Elementary School Principals Association also provided space for a description of the project.

Early responses to these announcements took the form of letters from individual teachers and principals interested in specific problems in elementary science. These letters ranged widely in interest and depth of penetration. For example, teachers' questions varied from: "Where can I buy a science kit?" to "Where can I go to visit schools where elementary science is making an important contribution?" One teacher asked advice about how to prevent elementary science from taking too much time out of the day-to-day schedule, while another told us that her chief complaint about elementary science was that it got the children so excited she found the matter of control a problem.

Letters from elementary school principals usually focused on broad general problems related to elementary science. For example: "Do we need textbooks in elementary science?" "Should our program be cumulative?" "How should we plan our curriculum so we can avoid both overlapping and large gaps?" In one instance, a principal conferred first by letter and then in person about the problems with which his faculty was struggling. These preliminary steps led to one of the panel members meeting with that school faculty to discuss plans for the coming school year. In this case, as in many others, one of the team members was able to undertake this advisement within his teaching schedule so that no time was lost from his college classes.

Following this initial period when contacts were made by correspondence, a variety of activities was planned in districts thruout the state. These generally fell into one of the following categories.

One-day institutes: The most common type of in-service activity in New Jersey seems to be the one-day institute in which the children stay at home for the day while the teachers are at school for some sort of workshop program. If there has been thoro study in the planning stages, if there has been excellent communication with the teachers as to the degree and nature of their involvement, and if the program involves workshop experiences of apparent merit to the teachers, then considerable impact may result.

Four districts used variations of the all-day institute in planning in-service science activities. The least effective of these days seemed to be the one at which all the teachers met in one large room in the morning with a consultant instead of dividing up into small grade-level groups. The afternoon session was devoted to another area of the curriculum and therefore contributed nothing so far as science was concerned.

The all-day workshop which seemed most effective placed all teachers of a certain grade level together with a consultant for the whole day. This program had been preceded by a planning session between local leaders and the six consultants scheduled to lead the small groups. Altho this workshop was quite successful, it could have been improved: 1) if teachers had had an active role in planning; 2) if teachers had been informed about what the consultants expected them to do in preparation; and 3) if a block of the afternoon time had not been used for an unrelated purpose. In planning this event, provision was made for interested substitute teachers to attend and one of the local district's staff was used as a consultant. Both of these factors seemed important in contributing to the institute's success.

Demonstration lessons: A demonstration science lesson may be effective if the climate is such as to encourage the observers to question and challenge openly, especially if they are able to discuss their reactions with the consultant.

Two school districts utilized the services of our consultant team by providing demonstration lessons for teachers to observe. In one instance, two consultants presented lessons, one in the first grade and the other in the fourth. It is interesting to report that prior to the fourth-grade demonstration, the consultant visited the class twice to become acquainted with the situation and to determine what approach would be effective with the children. At the annual convention of the state education association, one consultant presented a lesson with sixth-grade children for any interested teachers.

Curriculum committee meetings: Three local

school districts approached the up-grading problem by calling in a science specialist to advise and to provide resource information for the curriculum committee. Each of these districts later developed actions which involved all the teachers on a particular institute day.

Faculty meetings: Another type of consultant service was provided for faculty meetings. In one case, it was decided ahead of time by conference that the meeting would relate to the use of experiments and demonstrations in elementary science. At another, the agenda focused on ways to develop critical thinking and scientific attitudes thru the elementary science program.

Classroom visits: One school district made it possible for one of the teachers to have a consultant visit her sixth grade. This procedure provided an opportunity for the teacher to receive specific help by discussing the existing situation and getting recommendations on objectives and procedures.

Science fairs: The consultant staff helped in several instances in the planning, coordinating, and judging of science fairs. In preparing for these events, the consultants were able to work with a large number of teachers and students.

Value of the Project

There appear to be several weaknesses in the consultant plan as it has been operating. For one thing, evaluation of a purposeful, diligent sort has been omitted. There has been no preliminary measurement of the status quo or follow-up to identify any signs of improvement in the classroom programs of teachers who received consultant help. Omission of this step in no way lessens our conviction that evaluation is always a most important aspect of the learning process.

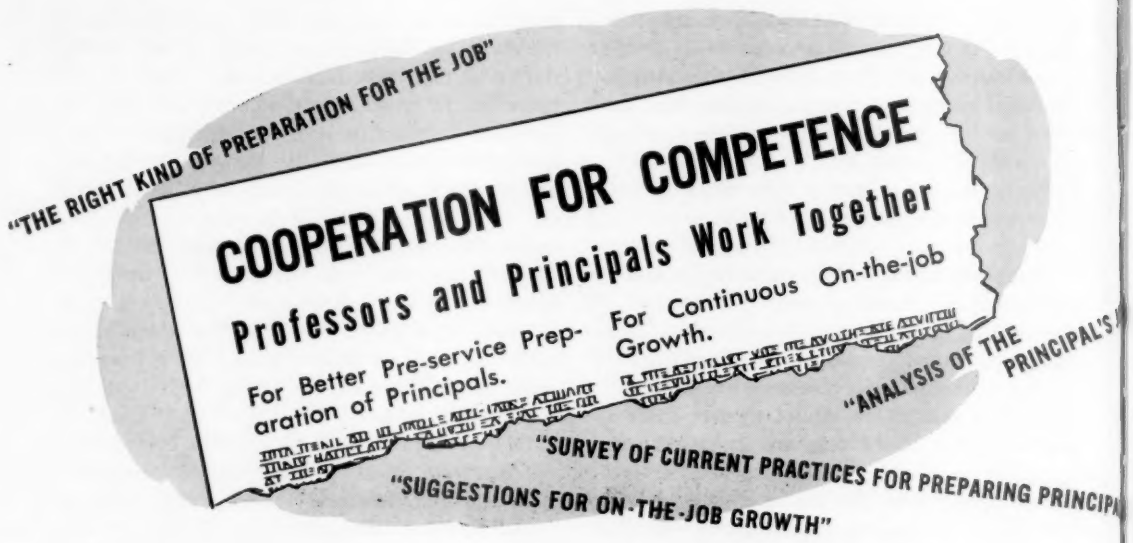
Another weakness of apparent weight has been the absence of wide involvement in making arrangements for the various events. Rarely have teachers or committees of teachers been included in the planning stages of these activities. One result of this has shown up in poor communication and in the slowness in which the actions began to stimulate teachers.

The problem of compensation also needs consideration. In the initial work, one of the specialists indicated that adequate compensation was a necessity. In activities that have involved the consultants for a full day, local school authorities usually have taken steps toward compensating the consultants. On each occasion where an activity has taken all day, the consultants have received a gratuity or sum for expenses. Current theory tends to indicate that consultation services are more valuable psychologically when sufficient cost is involved. The dilemma appears when one knows school districts that have no money for such purposes, and yet have vital needs for specific help. Perhaps the state department might be able to provide personnel for consultation where the school district recognizes a need but lacks funds. Certainly, it seems important that some means be devised to help such districts.

Despite these problems, it seems evident that without our effort to help communities with their needs in elementary science, some of them would not have done anything to supply the help that was needed. And in the process of scheduling these various events, it also became apparent that many qualified personnel are available for leadership roles in the elementary and secondary school staffs of the state. Other teachers colleges were able to provide staff members to help in unexpected emergencies. It would seem that our state department could render excellent service by organizing consultant programs staffed by experienced specialists from many parts of the state.

Again, these actions have made it apparent that many school districts have potential science specialists on their staffs. The circumstance of a scheduled event and too few consultants in two districts resulted in the use of three local persons. The long-range values stemming from this identification of personnel in local systems may be considerable.

Our consultant plan also spotlighted the great need for purposeful and determined extension of such services. Teachers of today's children should develop understandings, appreciations, interests, curiosities, and aptitudes in the scientific process of problem-solving. Elementary science activities with very young children, who are particularly receptive to learning, may be especially effective in achieving these goals. Therefore, it becomes vital that all elementary school teachers—primary as well as intermediate—have a feeling of security and self-confidence in elementary science activities.


"THE RIGHT KIND OF PREPARATION FOR THE JOB"
COOPERATION FOR COMPETENCE
Professors and Principals Work Together
For Better Pre-service Prep- aration of Principals.
For Continuous On-the-job Growth.
"ANALYSIS OF THE
PRINCIPAL'S
"SURVEY OF CURRENT PRACTICES FOR PREPARING PRINCIPA
"SUGGESTIONS FOR ON-THE-JOB GROWTH"

Recent years have seen substantial changes in the nature and scope of the elementary school principalship. The demands being made upon elementary education are greater than ever before and the principal is increasingly expected to offer a new kind of leadership. With these changes has come a growing need for a new kind of preparation for the job, a need calling for thoughtful action on the part of both elementary school principals and those responsible for their job preparation.

A small meeting held in Atlantic City in 1954 marks the beginning of a structured program by the Department of Elementary School Principals, NEA, to study systematically the selection and preparation of the elementary school principal. The interest stemming from this and a similar meeting held the next year helped stimulate the formation of a Department Committee on Preparation for the Principalship. This Committee has helped 1) to determine and implement a program for studying preparation experiences for the elementary school principalship; 2) to work with the headquarters office in organizing several regional leadership conferences to consider the problem and stimulate local and state action; 3) to evaluate the results of the various conferences; and 4) to recommend future action for the project.

Seven regional conferences on preparation for the principalship have now been sponsored by the national Department: at Nashville, Spokane, Oklahoma City, and Boston during 1956 and at Indianapolis, Philadelphia, and Minneapolis during 1957. In addition, three small meetings have been held in conjunction with annual meetings. The resulting reports, altho differing in detail, reflect certain common ideas—about competencies needed, selection procedures, pre-service and in-service preparation, certification standards. These areas of agreement, summarized here, provide an excellent basis from which to proceed in the future.

Competencies for the job: The major cluster of competencies identified centered around *personality*. Human relations factors, such as getting along with others, courage, and honesty, concerned the conferees. The *background and training* cluster of competencies was a second major area of concern. Cultural background, knowledge of human growth and development, and administrative insights were included in this category. The *professional operation* cluster was still a third major area of concern including curricular problems, working with parents, children, and the community.

These broad clusters were mentioned, in one way or another, in all of the conference reports. It would appear, then, that the members of the profession have quite a clear concept of the competencies they feel are needed for the job. *How* to see that elementary school principals are

equipped with such skills presents still another challenge. Much can be done, however, thru selection procedures, in-service and pre-service preparation, and certification standards.

Selection procedures: The identification and selection of future principals is a complicated matter and there is considerable difference of opinion about what factors should be considered in choosing a potential principal. Conference participants felt that possible answers may be found as trained personnel, using the case-study approach, consider candidates. By this procedure, much data concerning the individual may be accumulated. Together with opportunities for the candidate to experience limited administrative responsibilities, this practice holds some promise for the selection of candidates for the principalship.

Considerable progress might be made if several organized teams would approach the selection problem from every angle. As pointed out by some eminent educational leaders, the time is passing when one person independently directs his attention to the solution of a complex research problem. The team approach, supported by substantial funds, seems to be the direction research is taking.

Pre-service preparation: Conference participants clearly voiced the hope that collegiate instruction would emphasize the interdisciplinary approach, culminating in an internship experience prior to asssuming a position. At best, such an approach requires considerable financial outlay. Yet in spite of costs, these ideas should be put into wider practice.

Certification: As a rule, the states have very loosely constructed certification standards for elementary school principals. At least three states have no specific requirements for this position.

Ideally, certification requirements are not a necessity for strengthening the principalship *if* at the "grass roots" there is an insistence that highly trained and qualified principals should be employed. Nevertheless, until more states can stimulate such local interest, certification standards remain an important factor in the development of an improved elementary school principalship. These standards serve as bench marks to local boards of education and influence most collegiate preparation programs. In the report from the Atlantic City meeting in 1954 it is aptly stated that minimum requirements tend to reflect maximum effort on the part of the vast majority of collegiate institutions preparing persons for the principalship. Here is reason for having strong standards adopted by the states.

In-service preparation: If elementary school principals are seriously interested in greater professionalization, then this interest can be demonstrated and measured by the amount and quality of activity being carried on thru in-service programs.

On the basis of preliminary data being assembled by the Department, the projects currently underway thruout the nation are most encouraging and gratifying. Summer workshops jointly sponsored by state principals associations and collegiate institutions represent one promising trend. College-sponsored workshops geared to the seasonal needs of principals—such as the opening of school and the budget—are also proving useful.

Role of Professional Organizations

In this total picture of improving preparation for the principalship, local, state, and national organizations are important vehicles whereby ideas can become realities. The degree of support that principals give to these professional organizations is directly related to the amount of service the associations can render. Here is another measure of the profession's desire to improve its status.

For its part, the national Department can, among other things, serve as a clearing house of information and ideas thru its established channels of communication. Local and state associations can do much to initiate and carry thru action programs designed to meet the problems of their particular areas. The conference reports carry a recurring request that professional groups involve college professors interested in administration in their activities. These people can contribute much—directly and thru their classes.

Associations at all levels need to utilize the material emerging from the conferences sponsored by the DESP and systematically travel the various avenues identified for bringing about an improved elementary school principalship. Progress reports will appear from time to time on these pages attesting to the fact that such work is going on.

PROMOTION POLICIES . . . and MENTAL HEALTH

LORENE A. STRINGER

Our school mental health services program has, from its beginning, been heavily concerned with children having learning difficulties. This is natural, of course, since a learning difficulty is a symptom, an indication that somewhere something has gone wrong for the child. It is often the first such indication to be recognized. Where it is the first and its root can be determined, remedial help may prevent the development of additional and more distressing symptoms.

If the learning difficulty goes uncorrected, the child is not the only one who suffers. No child can sit in school five days a week for forty weeks each year without finding some sort of satisfaction. If he cannot find satisfaction in learning and in group acceptance contingent on keeping up with group activity, he will seek it in troublesome behavior or in day dreams. He may even be starting along the road to juvenile delinquency or along the road to incapacitating illness. Every educational failure, therefore, becomes eventually a loss to our society as a whole, as well as a disability to the child and a disappointment to his parents.

We think it also follows that work with children who have learning difficulties will involve consideration of their grade placement and of grade reassignment or promotion as part of the effort to help them.

It is to be noted that the term grade "reassignment" is used to indicate that a child will spend a second year at a given grade level. The term "retention" is not used because traditionally it has many overtones of failure and of repetition of the *same* experience.

Lorene A. Stringer is Supervisor of School Mental Health Services, St. Louis County Health Department, Clayton, Missouri.

We know of no simple rule of thumb that will tell us automatically how to decide grade placement. Our recommendations have differed widely from case to case, depending on the problems and the potentials of the individual child concerned. But since varying recommendations, seen outside of the frame of reference that shapes them, may seem merely arbitrary or thoughtless, we hope here to outline our own frame of reference in enough detail to show a basic consistency and validity in our different approaches to these problems.

A School Responsibility

We begin with the assumption that the school must assume some responsibility for teaching children to function as good citizens—self-reliant, emotionally mature, socially happy and productive. We see the school as one bridge between the protecting home of the child's earlier years and the sink-or-swim world of adulthood. That bridge should somehow help the child to grow, to develop increasing competence to deal with increasingly difficult tasks, and to gain enough self-discipline and self-confidence to earn and enjoy increasing self-determination. On the near side the bridge must be almost as comforting and undemanding of the child as his protecting home has been; on the far side it must be almost as rigorously demanding as the adult world will be. It is clear, then, that a tremendous amount of growth must take place during the school years.

School curricula may not yet be perfect devices, and school staffs, including mental health counsellors, may not all or always function with optimal skill. The fact remains, however, that the majority of our children do learn and grow and gain in competence as they go thru school, and

graduate far better trained for adulthood than they would be without the school experience. Because this is true, clinical thinking tends to see satisfactory academic progress as one of the important criteria of mental health, and academic retardation as a symptom of psycho-social disturbance.

This distinction has diagnostic value only if we have a clear and realistic picture of the child's achievement. If we measure a child's progress only in terms of his own past performance, we see him as his parents see him—along a single plane. We add nothing to their understanding of him nor to our own. But if we measure his performance against that of his classmates, we add a second dimension and one that only the school can provide so easily. And in this field of two dimensions we can spot individual differences and define areas of special need.

What Next ?

When we have spotted them, what can we do for them—these children with whom the school's teaching has been ineffective, who do not or cannot lend themselves to the school's helping effort?

Even if we could routinely isolate these children and put them into special classes, we should still only be quarantining the problem. We would not be solving it. We do not yet have any quick and easy way to know what a child's learning capacity is, which learning disabilities are due to innate intellectual limitation, which to postnatal brain damage, and which to emotional dysfunction.

A learning disability is like a slow-moving car. The car may be slow-moving because the hand brake has been left on and overlooked, or because the gas line is clogged, or because the driver is nervous and fearful, or because he is relaxed and has time to spare, or because of any other of many transitory conditions. Only occasionally does a car move slowly because it has been irreparably damaged or because it was simply not built to go fast.

Just as it would be meaningless to classify cars according to the speed at which they travel, disregarding reasons for that speed, so it is meaningless to categorize intellectual capacity according to achievement levels or IQ scores, disregarding factors that may be operating to reduce these from top efficiency. In the case of IQ scores, it is not merely meaningless; it is tragically wasteful. Clinical experience has taught us that severe emotional disturbance can simulate feeblemindedness. It has taught us also that this pseudo-feeblemindedness can be corrected if detected early enough and treated appropriately, but may become irreversible if neglected for too long.

We need to become clearer in our terminology. *Mental retardation* describes a kind of performance; *mental defect* (or mental deficit) denotes unchangeable condition. Any teacher can identify the retarded children in a given class, but even the most highly skilled clinicians hesitate to diagnose a child as defective except on evidence of complete laboratory tests. To confuse these two terms, to use them interchangeably as equivalents, and to deal with the children so classified as if they were all alike, leads to costly error. Either we waste effort by attempting to teach defective children what they cannot learn, or we push the non-defective children toward an incurable stage.

No Routine Handling

It seems clear, then, that no routine handling of these children can be satisfactory. Each child should be studied carefully enough to point the way to appropriate treatment and effective education. The school cannot, by itself, provide the whole solution. We must reach the parents of retarded children and enlist them in the effort to help.

But here we meet new difficulties. Most parents are untutored in these matters. They tend to equate all non-learning with mental defect, all emotional disturbance with "insanity." Therefore, they instinctively try to avoid seeing the problem or to blame it on the teacher or the school. They react with confusion or panic or anger or despair, just as we would in their situation. Our first task, then, is to help parents face and take hold of the problem; to worry them enough to stimulate them to act in the child's behalf, without frightening them into paralysis; to support them warmly and strongly enough that they can recognize the child's difficulty for what it is and cooperate in the treatment.

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recommendations, aimed always at stirring an effective amount of concern, may sometimes seem inconsistent or haphazard. The confusion is further increased whenever, because of total failure to gain parental cooperation, prolonged periods of observation and experimentation have to be substituted for the quicker methods of clinical diagnosis. In all cases, tho, the aim is always the same: to help the child by whatever means are available.

A Suggested Approach

It is possible, we believe, to develop a method for helping these children that will combine mental health practices and sound school policy to the advantage of both. We offer the following considerations.

Clinical experience yields abundant evidence that human beings usually function best within the security of a strong supporting framework of clearly defined expectations and limitations. Even a too rigid and restrictive framework may be more conducive to growth and confidence than no framework at all or a vague and fluctuating one. We all do better when we know what is expected of us and what we can expect in return. It would, therefore, be a necessary condition of any good school policy that it be fully supported by the school board (as representing the community) before its adoption, and made known to the whole community as quickly and as completely as possible after its adoption. It is of primary importance that the terms of the policy be clear and consistently adhered to. There is no other way to test its value.

Can we now structure and define a policy of reassignments that might further the aims of both education and mental health? Our state law requires that a child attend school regularly until he has "completed the common school course" or attained the age of 16 years. The retarded child, then, must 1) spend at least two years in high school regardless of his inability to do high school work, or 2) be rejected for high school and turned out into the world, or 3) spend more than the usual eight years in elementary grades.

Under the first of these three courses his pattern of failure is reinforced and he becomes less rather than more able to take care of himself. The high school, by carrying him custodially, depletes its resources for the training of competent students. Under the second course he is exposed to danger just a little sooner. He is not only without job training, but he is so young that few jobs are open to him. He may well spend two years in idleness, unless he becomes delinquent or mentally ill in less time than that. It is begging the question to say that the high schools do not reject these children. If the children reject the high schools, it is because they meet only defeat and discouragement. The third course, therefore, seems the one potentially constructive course. If we have the leeway of an additional year or two to use as we may need, we gain new opportunity to give effective help to the retarded child. This involves his repeating one or two of the first eight grades.

Perhaps we should pause again here to clarify some points. The findings of educational research indicate that very few children benefit by repeating a grade. We wonder if a more accurate statement of those findings would not read: "Very few children benefit by repeating the *same* experience." We would not only accept the latter statement, but would venture a corollary hypothesis: if appropriate help is given at the same time, many retarded children can benefit significantly by being reassigned to the same grade. This is no panacea but has been found to work successfully in many cases.

Now we can make the further point that often parents remain unconcerned and unwilling to use offered help until they are faced with the possibility that their child may need to be reassigned to the same grade level. Parents understand grade reassignments, commonly known as "retentions," and most parents react quickly when the problem is seen in this context. They react with alerted concern and an uprush of interest in helping if they feel that the school, too, is wanting to help. In short, we believe that if we use grade reassignments wisely, with awareness of all the feelings involved, with thoughtful consideration of auxiliary measures, and with skillful timing to catch the point of greatest receptivity, these reassignments can be good.

A Plan in Operation

In the first years of our experimentation along these lines, the limitation on mental health counsellor time forced us to choose two grade levels

at which we might bring all children under observation. We were sure that cases of gross disturbance would be picked up at all grade levels, but we were equally sure that the insidious, quiet dysfunctions might be overlooked in any casual screening. We chose the third grade as the first of these levels, because reassignment here gives the child opportunity to master basic learning tools before being confronted with the harder tasks of the intermediate grades; because it does not carry the stigma, the social dislocation and psychological discouragement that it does when a child is older; and because it could alert the parents to the need of special help, at a time when the problem was still new enough to be relatively easily treated.

We assumed that there would be cases where the first reassignment would yield only limited gain or no gain at all, and we recognized also the need to avoid stigmatizing and over-discouraging the children. We proposed, therefore, to follow that first reassignment with promotions—social promotions if necessary—for as many as four years. These social promotions were to be clearly designated as such. This we felt was necessary to preserve student respect for good classroom performance, to permit the teacher to function efficiently with the normal group and, even more important, to keep the child and his parents alerted to his difficulty and to the availability of special help. The designation was to be made by withholding report cards and substituting for them a parent-teacher conference aimed at clarifying the problem with the parents, and an offered appointment with the mental health counsellor aimed at informing the parents of resources for special help. Without some such follow-up, we stood to lose any value that the first reassignment might have had, and would be inviting the parents to believe either that the problem had disappeared or that the reassignment was merely the expression of someone's annoyance. It was to be clearly stated also in each social promotion, that a second reassignment at a higher level was to be expected if the child continued to lag in performance.

We chose the seventh grade as our second focal level. At that level the child himself can sometimes be motivated to greater effort. He is socially more sensitive, so that reassignment will hurt; he is psychologically more mature, so that he can use his energies more purposefully to avoid such hurt. In addition, parents who have remained unconcerned up until the child enters adolescence often awake to concern at that point. Finally, at least a few children might benefit from simply being exposed to seventh-grade work for two years instead of one. If a final social promotion proved necessary, it was to be given in a manner similar to that of the earlier social promotion: withholding the diploma that signifies earned merit, substituting a certificate of attendance or effort, and doing everything possible to effect a referral to state vocational rehabilitation services for further training.

Evaluation

The plan outlined here is, we believe, sound and usable. In first recommending it, we stressed the importance of considering it as experimental and according it continuing appraisal and revision in the light of accumulating experience. After two years of experimentation in one school, we have developed a pattern that seems to promise an improved practice. What we call the Academic Progress Chart was designed to graph the rate of a child's learning as measured by yearly achievement tests. By this means it was proposed to evaluate the results of reassignments made according to the experimental plan. The Chart, however, proved to have two additional uses:

1) it enabled us to detect quickly an academic lag at any grade level from the first on thru the eighth;
2) it revealed the child's problem to the parents more clearly than any other method we had found.

We do not yet have statistics to prove or disprove the value of "therapeutic" reassignments tho data are being collected for that kind of study. We do have indications that slight revisions of the earlier plan may yield real gains in four areas.

1) Where an incipient problem can be detected as early as first-grade level, remedial measures can be instituted as much as two years sooner than could be expected under the earlier plan. This is not necessarily to say that a child

should be reassigned at the first-grade level, but focused work with the parents should start as soon as a potential problem appears.

2) At first we had difficulty getting parental support for the plan of reassignment (and parental support is still thought indispensable to obtaining maximal gains in reassignment), but we are now finding parents preponderantly in favor of reassignment when the indications for it are graphically clear, as they are in the Academic Progress Chart.

3) Teachers earlier had uncomfortable concerns about the children who were reassigned, expecting trouble and frustration from them. They have by now seen enough evidence of gain in the repeated year to be unanimously eager to see how much they can do toward helping the reassigned child to make good.

4) It was to be expected that class medians of achievement test scores would be raised somewhat, simply by virtue of the fact that the lagging children were reassigned. This fact alone, however, is not enough to account for the rise in class medians in two years' time, a rise amounting to at least one-tenth of a grade, and at most to seven-tenths of a grade. This rise was apparent both in grades where reassignments were recommended and in other grades, with an average increase of four-tenths of a grade. It is our tentative impression that this gain reflects better student effort, and better parent cooperation.

We plan to continue experimenting, evaluating, and revising, and we hope that other schools will undertake comparable studies. We are, of course, fully aware that success in academic achievement is not the only factor in judging a child's development and adjustment in society. There is room for much thoughtful discussion and questioning; there is need for much variation in approach, because each school will have its own particular characteristics to consider. But there is every reason to believe that out of many such efforts we can eventually develop principles that will promote better education and better mental health.

Outstanding Elementary Publications

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These six new activity books are a key to scientific understanding on the elementary level. They correlate careful observation, classification, experiments, and discovery of relationships through personal student participation—a learning by doing approach. Teacher's Editions will be available upon request.

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Thorough knowledge of auditory and visual discriminations and their quick recognition are the goals of this new phonics series for the primary grades. Workbooks combine text material and practice activities. Teacher's Manuals, one per grade, will be available upon request.

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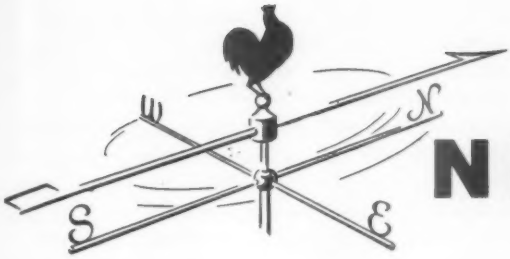

NEWS LOCAL-STATE-NATIONAL

State and Local

MEETING HELD IN DELAWARE

"The Place of Special Teachers in the Curriculum" was the theme of a recent meeting held by the Delaware Elementary School Principals Association. The program included a speech and discussion groups in which all of the 60 members and guests attending could actively participate. Particular emphasis was given to the role of special subject teachers in the total school program and to the principal's responsibility in coordinating their work with that of the regular classroom teacher.

NEW YORK OPENS HEADQUARTERS OFFICE

This spring the New York State Association of Elementary School Principals will take an important step in opening a headquarters office in Albany. Heading it as Executive Secretary on a part-time basis will be Dudley Snyder, Supervising Principal of the Union Free School District, Valley Stream, New York. Altho Mr. Snyder has been serving as Executive Secretary for some while in addition to his regular duties, he now will be devoting a greater proportion of his time to Association business. He also will be working with other professional organizations with offices in the state capital.

As enumerated in the organization's Constitution, the duties of the Executive Secretary include:

- Maintaining close working relationships with other professional educational organizations
- Facilitating the publication and distribution of all publications
- Maintaining the files of the Association
- Arranging for the annual conference and other meetings of the organization and assisting as required with zone meetings
- Working with committees as necessary and serving as a permanent member of the Legislative Committee

OHIO PROPOSES SALARY FORMULA

A leaflet containing guides to equitable compensation for principals has just recently been issued in Ohio. The proposals are issued under the joint sponsorship of the Ohio Department of Elementary School Principals, the Ohio High School Principals Association, and the Ohio Association of School Administrators.

As a basis for determining principals' salaries, the leaflet suggests this formula:

Base: Use as a base the regular position of the principal on the teachers' salary schedule.

Certification: Provide an additional allowance of 5 percent of the base salary for securing a professional certificate in administration and an additional allowance of 10 percent of the base salary for obtaining the permanent certificate.

Supervisory responsibilities: Add the following allowances for classroom units under the principal's administration: 0-10 units, no allowance; 11 or more units, 1 percent of base pay for each three units above 10, but not to exceed 15 percent. This increment is provided in recognition of the fact that the major portion of the princi-

pal's supervisory responsibilities lie in assisting and working with teachers and children.

Administrative duties: Add an additional 10 to 25 percent of the base pay for administrative duties—supervising non-professional employees, managing the school plant, community services, student activities, and organization and general management of the school. If the principal is only on part-time administrative duty, his percent should be determined according to the amount of time devoted to administrative work.

Extended service: Add one month of total pay to the principal's salary for each month beyond nine months of service.

National Department

COMMITTEE MEETINGS

Two Department committees held meetings during March. The Executive Committee had a one-day session in Philadelphia immediately prior to the opening of the Annual Meeting. A record of major action taken at the time will be provided in the 1958 *Membership Directory and Annual Report.*

The Yearbook Committee, meeting in Washington before the Annual Meeting, completed plans for the 1958 Yearbook—a research study on the status of the elementary school principalship. The group also worked with the staff in beginning to make plans for the 1959 Yearbook.

ANNUAL MEETING

Altho at this writing the Annual Meeting is still several weeks away, it already looks like a success.

Pre-conference registration was well over 1,700 by the deadline date of February 20. Groups which were especially popular among registrants were: Group Planning for Instructional Improvement; Cooperative Procedures for Teacher Evaluation; The Gifted Child; Techniques for Effecting Changes in the Curriculum; Planning for

Successful High School Teaching SAM P. WIGGINS

The importance of developing individual teaching methods is emphasized in this text, and the author presents a thorough and effective examination of the differences and problems in junior and senior high school teaching. This concise text, written both for undergraduates and teachers in service, also provides a keen and perceptive analysis of the developmental characteristics of the teenager.

Available spring, 1958.

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OUR LEADERSHIP PROGRAM

Last summer at State University Teachers College, Plattsburgh, N. Y., the New York State Association of Elementary School Principals, in connection with the College, conducted a wonderful two-week workship for elementary principals and supervisors. We had a top-notch staff; we worked hard; but we had a grand time there, in New York's vacationland.

This summer we repeat at Plattsburgh with a guest faculty of John Bartky of Stanford, Vernon Hicks of Michigan State, Harold Drummond of Peabody, Alonzo Myers of N.Y.U., and Walter LeBaron of the New York State Education Department. It's going to be another great program. Won't you join us?

Cordially,

Crede D. Hagerty, president
New York State Association of
Elementary School Principals

DATE: Aug. 11-22 CREDIT: 2 pts. graduate
COST: $100 including fees, room and board
WRITE Dr. A. N. Schwartz, Resident Director, Leadership Workshop, SUTC, Plattsburgh

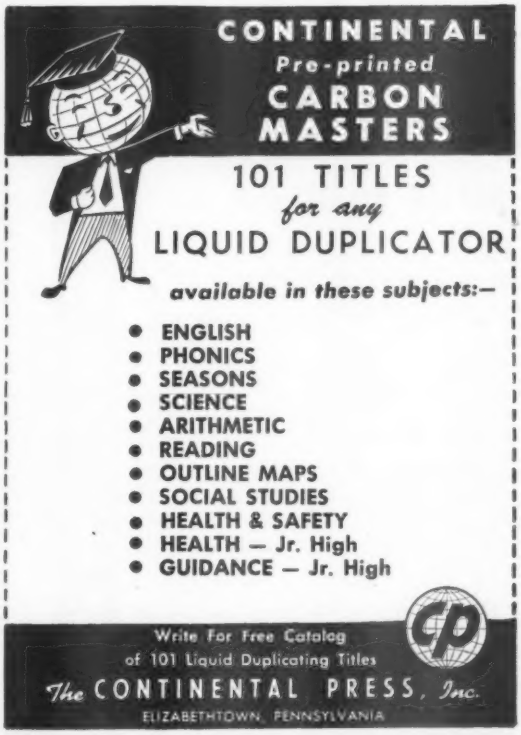
Continuity in the Curriculum; and Re-thinking the Science Program.

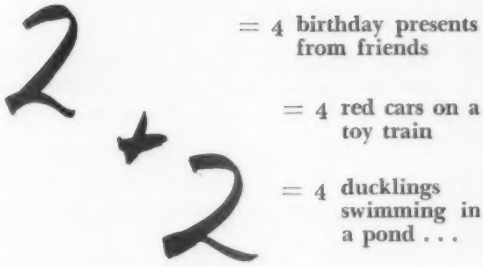
Hotel reservations made with the Philadelphia Housing Bureau up to March 1 reached the 2,400 mark—well on the way to the expected attendance of 3,500 or more.

For those members who could not attend the conference, a more complete report—including several speeches—will be contained in the May issue of THE NATIONAL ELEMENTARY PRINCIPAL. One of the addresses given at the conference, by Robert Wickware, may be found on page 18 of this issue. The 1958 *Membership Directory and Annual Report*, published in November, will also contain a report on the conference.

COPIES OF PLAY AVAILABLE

May We Remember, the dramatic production presented on Sunday evening during the Annual Meeting, is now available in printed form. Copies of the script will sell for $1.00 each. More complete information about the play may be found on p. 4-5.





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ELECTION RESULTS

Ballots cast in the annual election by mail of Department officers were tallied on February 21. Elected to the Executive Committee were the following people:

President-elect: A. Raymond Ebaugh, Principal, Whittier School, Royal Oak, Michigan

Vice-president: Olive Lowry, Principal, Madison School, Spokane, Washington

Members-at-large: James M. May, Principal, Holmes School, Tulsa, Oklahoma

Martin C. Tate, Principal, Grace Court School, Phoenix, Arizona

In accordance with the provisions of the Department's Constitution, ballots were opened and counted by an Election Committee appointed by the President. Members of this Committee for the 1958 election were: H. Richard Adams, Charles Town, West Virginia; Ethel Nash, Fredericksburg, Virginia; and Kathryn G. Reidy, Silver Spring, Maryland.

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The Judy Company 46
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Plattsburg Teachers College 38
Rainbow Rhythms 46
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Scott, Foresman and Company 47
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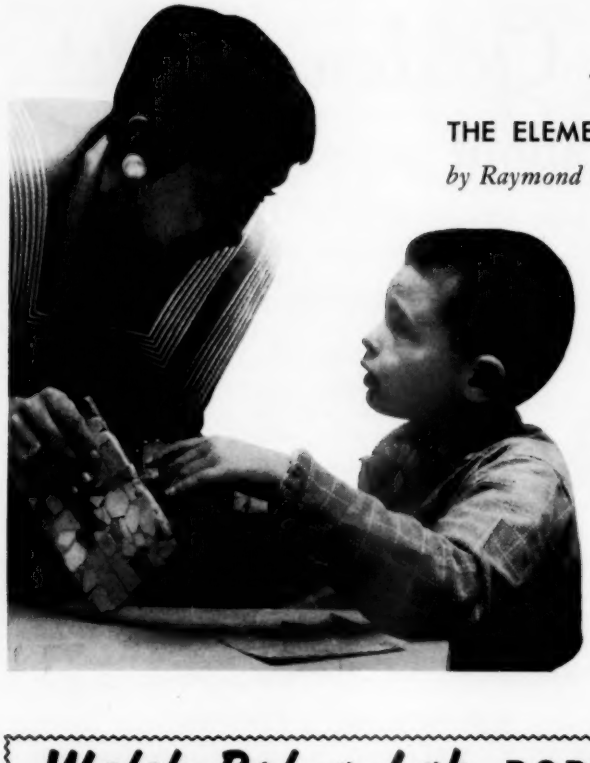

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UNIVERSITY OF DENVER. Conference on Elementary Education. Theme: *Education for Scientific Living.* Cosponsored by the Department of Elementary School Principals, NEA. July 7-18. Credit: 3 quarter hours. Series of seminars, clinics, and speeches dealing with the problems principals and teachers face in educating youth in a modern scientific age. Write Dr. Harold E. Moore, School of Education, University of Denver, Denver, Colorado.

DEPARTMENT OF ELEMENTARY SCHOOL PRINCIPALS, NEA, AND NATIONAL TRAINING LABORATORIES, NEA. Leadership Skills Workshop for Elementary School Principals. To be held at Bethel, Maine. August 10-22. An intensive laboratory program in human relations for school executives. Credit: 2 units from University of Maine. Limited number of participants. Apply to the Department of Elementary School Principals, NEA, 1201 Sixteenth St., N.W., Washington 6, D. C.

UNIVERSITY OF HAWAII. Workshop for Elementary School Principals. The workshop will be focused on the leadership functions of the elementary school principal, with particular emphasis on the principal's role as curriculum coordinator. June 23–August 1. Credit: 5 semester hours. For further information write to John B. Crossley, Associate Professor of Education, Teachers College, University of Hawaii, Honolulu.

MICHIGAN STATE UNIVERSITY. Second Annual Workshop for Elementary School Principals—1958 Summer Session. Theme: *Developing In-service Programs for Elementary School Principals.* Cosponsored by the Michigan Department of Elementary School Principals. August 4-15. Credit: 3 quarter-hours. Write Dr. Herbert C. Rudman, College of Education, Department of Administrative and Educational Services, Michigan State University, East Lansing.

NEW YORK UNIVERSITY. Administrators' and Supervisors' Problem Seminars: school buildings and equipment; personnel and instructional problems; school-community relations. July 1-August 8. Credit: 2-8 pts. Also elementary school administration and supervision courses. June 3-27; July 1-August 8; August 11-September 5. Credit: 2-8 pts. Write Dr. Parmer L. Ewing, Chairman, Dept. of Administration and Supervision, New York University, New York City.

OHIO UNIVERSITY. Workshop for Elementary School Principals. Theme: *Meeting Today's Challenges.* Cosponsored by the Ohio Department of Elementary School Principals. August 4-16. Credit: 2 semester hours, graduate or undergraduate. Or those who prefer may attend the workshop on a noncredit basis. For additional information about the program, write to Dr. Milton E. Ploghoft, Workshop Director, Ohio University, Athens.

UNIVERSITY OF PENNSYLVANIA. E690: Principles and Practices in Elementary School Administration and Supervision. June 30-August 9. Credit: 4 semester hours. For additional information about this course and also for material describing other phases of the University of Pennsylvania's summer school program for 1958, write to Dr. William E. Arnold, Dean of the School of Education, University of Pennsylvania, Philadelphia.

THE PENNSYLVANIA STATE UNIVERSITY. Elementary Education Instructional Improvement Workshop. June 30-August 19. Credit: 6 semester hours. Also junior summer laboratory school; children's demonstration art classes and theater; special workshop with demonstration classes; reading conference; about 50 elementary education courses. Ideal campus and mountain environment. Write Dean of Summer Sessions, Pennsylvania State University, University Park.

STATE UNIVERSITY TEACHERS COLLEGE AT PLATTSBURGH. Second Annual Leadership Workshop: for elementary principals and supervisors. Theme: *Human Relations in Educational Leadership—a prime requisite in an age of science.* Cosponsored by the New York State Association of Elementary School Principals. August 11-22. Credit: 2 graduate semester hours. Write Dr. A. N. Schwartz, Resident Director, Leadership Workshop, SUTC, Plattsburgh, New York.

An increasing number of special summer programs are being planned each year for elementary school principals. On this page are listed a number of such events for the coming summer. The institutions represented here are those which responded to our invitation to place announcements of their programs in this issue at a special rate.

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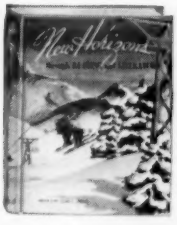

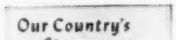

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ACC CURRENT PROBLEMS IN EDUCATION

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By LEO J. BRUECKNER. Written by a widely known authority in the field of arithmetic teaching and learning, this book aids school administrators and teachers in making a systematic study and evaluation of the arithmetic program in their schools. *$1.25*

Helping Teachers Understand Principals

By WILBUR A. YAUCH. This book explains the goals of a democratic principal and tells how his teachers can help him attain these goals. It deals with teachers' meetings, the problems of the curriculum, the supervision of instruction, parent relations, and the evaluation of teacher success. *$1.10*

Workshops for Teachers

By MARY A. O'ROURKE and WILLIAM H. BURTON. The authors provide here for the first time a comprehensive summary of present-day workshop organization, management, and procedures. It should be of great use to anyone who participates in a workshop as leader, consultant, staff member, or student. *$1.10*

Improving Reading in the Junior High School

By L. JANE STEWART, FRIEDA M. HELLER and ELSIE J. ALBERTY. This is a first-hand account of how a core teacher and a librarian worked together on a project to improve the reading ability of eighth-grade boys and girls at the Ohio State University School. *$0.95*

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NEW
and worth reading

LANGUAGE ARTS IN THE ELEMENTARY SCHOOL. By Ruth Strickland. Boston: D. C. Heath. 1957. 464 pp. $5.50.

How does your school teach listening? Do your teachers assume that paying close attention is the only thing required? Are hearing and listening the same thing? Are they aware of the role which listening plays in modern life? Do they have any idea of how to help children learn to listen?

Chapter 6 of Ruth Strickland's book alone makes it worth having, for until very recently few authors thought that listening was a subject worth separate emphasis. We find as long ago as 1928 a study which indicated that 42 percent of daily communication time was spent in listening, 32 percent in speaking, and 25 percent in reading and writing. Now that we have television these proportions have probably increased for listening time. It is also interesting to find that teachers out-talk children each day, with children spending more than half of the school day in listening. Some may find this situation somewhat alarming, especially where there is some doubt that listening is the best way to learn. Whether listening leads to learning may depend on some of the very skills which are presented in chapter six. Strickland points out that listening is related to oral communication in the same way that reading is related to written ideas.

However, this book deals with more than listening. It covers the full range of the language arts—language development, speaking, vocabulary, reading, writing, English usage, spelling, creative writing, dramatic interpretation and the relationship of all these to the child's growth in the elementary years.

Language Arts in the Elementary School gives useful answers to such questions as: What makes a good program in the language arts? How can children be helped to develop necessary skills? How are individual differences in the language arts taken into account?

The book is most attractive and appealing in its layout. The paper and type are of good quality. Some good books tend to repell the reader by some subtle reactions to purely mechanical appearance. This book seems to invite attention, and the good writing then holds it. It is a good advertisement for the author's skill in the subject she writes about.

SCIENCE AND THE SOCIAL STUDIES. By H. Cummings, Editor. National Council for the Social Studies, NEA. Washington, D. C.: the Association. 1956-57. 271 pp. $4.00.

"How in the world can we work science into an already overcrowded curriculum?" This is a most pertinent question in many schools which are only now beginning to accept science as a necessary part of the curriculum as well as in others which have already done so. It is tempting to answer, "Integrate it with other things now going on." But this is not easy and sometimes not desirable.

The 27th Yearbook of the National Council for the Social Studies should be thoroly studied in every school in the country. It offers a sensible approach to the relation of social studies and science. Howard Cummings points out that each decade sees revisions in the social studies in an attempt to meet the needs of changing society. The term, social studies, is taken to mean everything needed to properly understand the public problems faced by the citizen. Currently emphasis is heavy on Asia and other lands previously neglected and on the impact of science.

The yearbook carefully avoids any position which would make the social studies just the dumping ground for another content area. It does not suggest a core curriculum adding science to what is already there. What it aims at is a point of view which helps the teacher of social studies see the impact of science on man and his problems. The emphasis is on the scientist at work, his motives, his methods, and the various ways he achieves his results. The procedures of science are stressed.

The second part of the book deals with these things: the use of science and technology in improving living conditions, with the International Geophysical Year, the National Science Foundation, science and agriculture, medical sciences, and atomic energy. One wishes a section had been added on satellites and space travel since there is a close analogy between the old age of exploration 500 years ago and the new age of space now opening so rapidly.

The third part of the book then comes to grips with the practical matters of applying the point of view to elementary and secondary schools and how to prepare teachers for putting it into action.

The goal is to illuminate what is now taught in the social studies without adding or subtracting subject matter. It is suggested that the objectives in science and social studies need to be set down separately and that the needed content also be so set

down. Informed judgment then considers where and when to fuse and when to keep the lines distinct. Where relationships are obvious as with conservation the fusion can be so complete that labels such as social studies or science are not needed.

The yearbook seems to suggest that fusion of subject-matter is secondary to fusion of "methods of discovery" which are common to both science and social studies. Interrelations should be brought out no matter what the particular subject happens to be.

It is recognized that inadequate teacher preparation in both areas causes teachers to hide behind specialization. Every social studies teacher needs an elementary knowledge of science such as good general education courses can provide. The college social science instructor must begin the process of showing interrelationships. The methods courses must do it, too, and finally the teacher himself must have the interest to make it happen.

This yearbook deserves close attention from all who want to keep a sensible balance in the curriculum in the face of current pressures to upset such a balance.

JOHN STERNIG
Book Review Editor

NOTE: In May, we will include an article from the Yearbook reviewed above. Written by Glenn Blough, it is concerned with ways in which science and social studies may be effectively "fused."

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Coming Events

April 6-11: 1958 Study Conference, Association for Childhood Education International. Atlantic City, New Jersey.

April 6-12: International Convention, International Council for Exceptional Children, NEA. Kansas City, Missouri.

April 9-12: 36th Annual Meeting, National Council of Mathematics Teachers, NEA. Cleveland, Ohio.

April 21-25: Annual National Convention, Department of Audio-Visual Instruction, NEA. Minneapolis, Minnesota.

June 25-26: Annual Summer Meeting, National Science Teachers Association, NEA. Columbus, Ohio.

June 29-July 4: Annual Convention, National Education Association. Cleveland, Ohio.

June 30: One-day meeting. Department of Elementary School Principals, NEA, Cleveland, Ohio.

July 7-18: Annual Conference on Elementary Education, School of Education, University of Denver and Department of Elementary School Principals, NEA. Denver, Colorado.

August 10-22: Leadership Skills Workshop, National Training Laboratories, Division of Adult Education Service, NEA, and Department of Elementary School Principals, NEA. Bethel, Maine.

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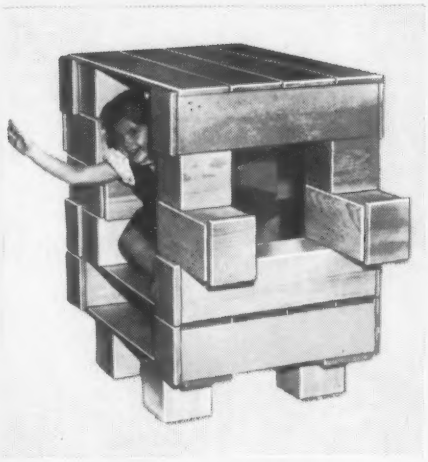

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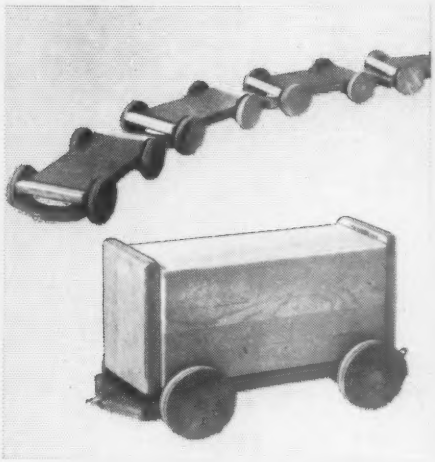

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